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## EDITORIAL.

MADRAS CONVOCATION ADDRESS.

We publish on another page the lengthy but most interesting Convocation Address of Dr. King, which is well worth reading, especially the latter portion of it which deals with *sanitation in the shastras*. Dr. King not only proves that Ancient India practised vaccination for small-pox, but that it was perfectly well acquainted with the Bubonic Plague and had a special segregation system for dealing with the same. The address is an able and original vindication of the medical knowledge of Ancient India, and we trust that it will induce our younger medical men to try to purify, systematise and develope on Western lines the adulterated and disordered remains of a venerable art.

MADRAS UNIVERSITY FELLOWSHIPS.

The recent list of Fellows of Madras University seems to have given pretty general satisfaction, though it still leaves room for improvement. A few names might perhaps have been omitted and several others added with advantage. Fellowship lists seem on the whole to be painfully improving, which is something

to be thankful for, but it does not yet seem to be recognised that a University Fellowship is an educational matter, and that no one should be made a Fellow unless he is either a man of educational experience or someone whose absence from the Senate would be a real loss to it. There should be no difficulty in choosing Fellows. All the authorities need do is to look over the University Calendar and make a list of those Professors, Lecturers and University Examiners who are not yet Fellows, and to add these gentlemen to the Senate as soon as possible. Until recently, however, these were almost the last people to be put on the Senate, and the present state of University chaos is the result. If a man is good enough to hold any of the above positions he is surely good enough for a Fellowship of Madras University, and the Senate needs all the good men it can get. It is bad for both the University and the individual to keep such men out till they have lost their energy and enthusiasm. Nothing can be so bad for education as licensed amateurism.

THE WARDLAW COLLEGE, BELLARY.

We are glad to see from the last report of the Wardlaw College that it continues to prosper steadily, and now numbers over 400 students. Its recent inspection report was very favourable, and its grants have now been paid in full. The College is a thorough-going missionary institution and seems to be doing an excellent work among the Native Christians of the Ceded Districts, as the amount of its direct religious teaching shows. Native Christians in this part of India do not, however, seem to have taken kindly to education, as for the last twelve years no Native Christian has passed the Matriculation from this College. This year, however, we are glad to see that the reproach has been wiped off.

THE 'MANGALORE MAGAZINE.'

We welcome with pleasure the Easter number of the new *Mangalore Magazine*, the organ of the well-known College of St. Aloysius which has done so much for education and missionary work on the West Coast. The magazine is full of interesting and well-written matter, and bears ample witness to the admirable *esprit de corps* which is one of the pleasantest features of this excellent institution. The lives and doings of old Aloysians are carefully traced, in a way which shows that the College keeps a friendly eye on its pupils

after they leave its shelter. There is a good deal of poetry scattered about its pages, and several articles that well repay perusal, for example, those on *Mangalore Harbour, the Konkany Language* and *Alphabet,* and *Kanarese History.* To judge from the record of College doings, the Fathers and Students of St. Aloysius have no lack of engagements religious and secular, and we are pleased to note the earnestness and vigour of their corporate life. St. Patrick's Day, we are glad to see, was worthily celebrated by a Lecture and Irish Concert. It must be a source of great gratification to the retiring Principal, Rev. Father Maffei, to leave the College in such a flourishing condition.

## AN ORIENTAL FACULTY FOR THE MADRAS UNIVERSITY.

In August 1896, the Honourable Dr. Duncan submitted to Government "a rough scheme for instituting departmental examinations in Oriental languages, after previously ascertaining what was being done in this direction in other provinces of India." The action he took in this matter was forced on him by practical considerations bearing on the administration of a great department of State; and it is necessary that this fact should never be lost sight of, for it is only when we lose touch with the actual facts of daily life that we are apt to fall a prey to our emotions, and then we not only lose ourselves in the conflict with adverse circumstance, but do much injury to precious human interests. As Head of the Department of Education, the Hon'ble Dr. Duncan points out, in the letter to Government abovementioned, that he has had to experience considerable difficulty (1) in selecting qualified men for the posts of pandits and munshis, and (2) in improving the existing system of popular education so as "to convey to the masses of the people the rudiments of modern knowledge and to fix that knowledge in their minds as a permanent possession."

As regards the first-named difficulty, Dr. Duncan points out that "no scheme has ever been formulated or sanctioned to determine the qualifications of candidates for the posts of pandits or munshis" and that the existing system is, on the face of it, alto

gether unsatisfactory, as "the nomination or recommendation of one or two experts to whom only a limited number of qualified men are known" is certainly a very miserable and even unworthy device in the hands of a great State organisation with large resources at its command and important interests to look after. The result of this method of selection has often been to make our pandits and munshis largely an anachronism in our present system of education and sometimes even the laughing-stock of their pupils, because their methods, in spite of some acknowledged merits and their honourable antiquity, stand in too glaring a contrast to the methods of instruction of the teachers of English subjects or are not properly modified and adapted to meet existing requirements and therefore imperfectly understood and appreciated by the pupils of modern Indian Schools. Usually, the pandits and munshis are selected on the recommendation of the Indian subordinates of the heads of Schools and Colleges, and often these men are themselves quite innocent of the knowledge needed for testing the capacity and qualifications of the candidates for employment, and either consult well-known pandits and scholars in their neighbourhood or simply put forward the name of some person out of personal and private motives and without having any thought of the public interests they are called upon to serve. Is it possible to deny the unsatisfactory character of this method of selection for these important posts? The question has only to be put, and there cannot be a moment's doubt as to what answer will be given by any right-minded person.

The second of the departmental difficulties above stated is the total absence, under existing circumstances, of all means of conveying modern knowledge to the masses of the people. This is due to the fact that the vernacular languages have in recent years fallen into neglect and become unprogressive, that literary production in those languages has altogether ceased at present, and that, unless the vocabulary and the literature in those languages are enriched, they cannot serve the purposes of civilisation and must soon cease to be efficient instruments for educating and elevating the masses of the people, so that their already dense ignorance and their moral degeneracy must soon assume the most deplorable and hopeless dimensions, and all prospect of their being able to maintain the continuity and expansiveness of the national civilisation under the

inexorable conditions of modern industrial and social struggle must soon for ever have passed away.

It is in this latter aspect that the Hon'ble Dr. Duncan's proposals have far-reaching consequences; it is in that aspect that they have given rise to wide divergences of opinion; and it is when viewing this aspect of the problem that some men raise important issues of policy or interest, or give expression to emotions of various kinds. Already a great many men have favoured the public with their views, and a great many schemes have been put forward and discussed on all sides. Several men have also come forward to condemn Dr. Duncan's propositions *in toto*, either as re-opening questions once for all settled more than half-a-century since, or as an endeavour to stem or turn the tide of events after they have taken a course which it is now impossible to change. Many people have also at the same time ignored or forgotten the particular circumstances and difficulties existing in the present working of the Educational Department which have brought these proposals to the front and given them a practical character. In particular, the present unsatisfactory condition of popular education in this country is lost sight of, together with the causes which have contributed to it.

In placing before the public a further contribution to the discussions that are, and have been, going on, we wish to state that we propose to confine our remarks first to the consideration of the *second* and more important question, *viz.*, how far it is the duty of the Government and the University to remove those evils of the present system of education which have resulted in keeping the masses of the people of India as grossly ignorant and lethargic as they have ever been. Then we shall go on to consider what place our pandits can and ought to occupy in a well-balanced system of Indian education and what steps need to be taken in order to secure that they fulfil their rightful function in social evolution. The educational, industrial and social condition of the masses of the people, the condition of our vernacular languages and literature, and the position and prospects of those who are well-learned in that literature, its traditions and its thoughts, and the languages in which they are clothed,—all these are so completely and inextricably intermingled that our decision in regard to the one and the measures adopted to give effect to that decision must inevitably

affect the others; and, thus viewed, we cannot fail to see that most momentous issues are involved in the settlement of this question and every one who takes up the task of discussing it and especially those whose voices and votes have a recognised value in arriving at a decision of it must approach it in all seriousness and with a full sense of responsibility.

When the present system of education was instituted under Sir Charles Wood's Despatch of 1854, now deservedly known as the Magna Charta of Indian Education, the objects of Government were laid down clearly in the words of the Despatch :—" It is one of our most sacred duties to be the means, as far as in us lies, of conferring upon the natives of India those vast moral and material blessings which flow from the general diffusion of useful knowledge"; and again :—" They (the people of India) should be made familiar with the works of European authors, and with the results of the thought and labour of Europeans on the subjects of every description upon which knowledge is to be imparted to them; and to extend the means of imparting this knowledge must be the object of any general system of education"; and further again :— "The education which we desire to see extended in India is that which, has for its object the diffusion of the improved arts, science, philosophy and literature of Europe; in short, of European knowledge." The Despatch proceeded to say :—" This knowledge will teach the natives of India the marvellous results of the employment of labour and capital, rouse them to emulate us in the development of the vast resources of their country, guide them in their efforts, and gradually, but certainly, confer upon them all the advantages which accompany the healthy development of wealth and commerce, &c."

The Despatch goes on to make important declarations (*a*) as to the question of the medium through which knowledge is to be conveyed to the people of India" and (*b*) as to " the machinery which we propose to establish for the superintendence and direction of education." On the first-named subject, the Despatch contains the following remarkable passage :—" In any general system of education, the English language should be taught where there is a demand for it; but such instruction should always be combined with a careful attention to the study of the vernacular language of the district, and with such general instruction as can be conveyed

through that language. And while the English language continues to be made use of, as by far the most perfect *medium* for the education of those persons who have acquired a sufficient knowledge of it to receive general instruction *through* it, the vernacular languages must be employed to teach the far larger classes who are ignorant of, or imperfectly acquainted with, English. This can only be done effectually through the instrumentality of masters and professors, who may, by themselves knowing English, and thus having full access to the latest improvements in knowledge of every kind, impart to their fellow-countrymen, through the medium of their mother-tongue, the information which they have thus obtained. At the same time, and as the importance of the vernacular languages becomes more appreciated, the vernacular literatures of India will be gradually enriched by translations of European books or by the original compositions of men whose minds have been imbued with the spirit of European advancement, so that European knowledge may gradually be placed in this manner within the reach of all classes of the people. We look therefore to the English language and to the vernacular languages of India together, as the *media* for the diffusion of European knowledge, and it is our desire to see them cultivated together in all schools in India of a sufficiently high class to maintain a schoolmaster possessing the requisite qualifications." Further, as regards the education, in particular, of the masses of the people, the Despatch declared:—"Any acquaintance with improved European knowledge which is to be communicated to the great mass of the people—whose circumstances prevent them from acquiring a high order of education, and who cannot be expected to overcome the difficulties of a foreign language—can only be conveyed to them through one or other of these vernacular languages."

On the question of machinery, the Despatch mentions an Educational Department, Universities, Colleges, Schools, Grants-in-aid, Scholarships, &c.,—in fact the entire educational machinery which exists in every modern civilised community and with which the people of India have become familiar.

Summarising the declarations of the Despatch on matters of educational policy as well as the measures of detail needed to carry it out, we find (1) that the Despatch sets the very highest value on the general diffusion of improved European knowledge of all kinds,

literary, scientific, industrial, and other among the masses of the people of India, and knowledge, too, "of such a character as may be practically useful to the people of India in their different spheres of life". (2) that the English language should be taught where there is a demand for it, but combined with a careful attention to the local vernaculars; (3) that the vernacular languages should be used for the education of the masses of the people; (4) that this education of the masses in the vernaculars should be imparted by native Indian masters and professors who have learned the highest kind of European knowledge in English; (5) that, in order that European knowledge may gradually be placed in this manner within the reach of all classes of the people, the vernacular literatures should be enriched by translations of European books or by the original compositions of men whose minds are imbued with European culture and knowledge.

Nearly half-a-century has elapsed since this noble policy was laid down, and the time has certainly arrived for examining the value of the educational progress of the country and for ascertaining to what extent these declarations regarding the progress of modern knowledge and civilisation among the people of India have been carried out.

It was in 1835 that Macaulay, as a Member of the Council of India, recorded his famous Minute on education which decided what was then the burning topic of controversy among all Englishmen in India who had, or felt, the responsibility for the advancement of the prosperity and progress of the people of this country. He held up English as the medium of instruction for certain classes of the people, and in language and with arguments of such cogency and force as to carry everything before them. No one reading that famous document to-day, not even the most ardently patriotic Native of India, can fail to see the important and convincing nature of the arguments and illustrations advanced by one who was among the foremost men of his race in politics and literature and who was, in the best sense of the term, a benefactor and friend of the people of this country. It has been of the utmost advantage to us who have come under the vivifying and enlightening influences of English literature, science and philosophy that we are enabled to partake of the precious and limitless stores of knowledge and wisdom

which lie imbedded in that marvellous instrument of human utterance, perfected by a race the foremost in the world in every department of human activity and achievement. To have enabled us to enter into such an inheritance, to have had the unparalleled generosity to [illegible] that a subject race should have their intellectual tastes purified, be taught the useful arts, and learn the scientific methods of Europe, so that they may be worthy of association with their rulers in the conduct of the affairs of this great country, and fulfil the honourable function of faithfully interpreting the motives and methods of our rulers to the masses of the people, and the wants and wishes of the latter to the former,—that is surely a title to rank among the immortals of the world, and Macaulay deserves for it also our eternal gratitude. But we must not blind ourselves to the facts of the situation. Have the aims of the Despatch been carried out? Has even Lord Macaulay's conception of the requirements of the country and his hopes for the future been realised? Has the advance in knowledge made by the people in the last half-a-century been of such a character as to create feelings of satisfaction among our leading men, European and Native?

K. SUNDARARAMAN.

*(To be continued.)*

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## THE WOMEN OF SHAKESPEARE:—OPHELIA.

By an Indian Lady Graduate.

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"Beyond every character that Shakespeare has drawn," says a critic, "those of Hamlet and Ophelia make us forget the poet in his own creations. Whenever we bring them to mind, it is with the same exclusive sense of their real existence, without reference to the wondrous power which called them into life." Hamlet and Ophelia, independent of time, place and circumstance, may form two beautiful specimens of human nature in its hig[illegible] purity and goodness. The character of Hamlet is "an ideal abstraction." Yet in him and his situation are concentrated most of the interests that

... to humanity. Even his very frailties have endeared themselves to the world, on account of their being natural to mankind. Yet the character of Ophelia is not unworthy to be placed side by side with that of Hamlet. Her silent submissiveness, her sweet uncomplaining endurance of all the sorrows that are heaped on her gentle head, are as moving in their way as any of the most awe-inspiring of Hamlet's soliloquies. And if we look beneath the surface, we shall find that there is a close unity and resemblance between their different characters. In both we see the same purity of nature, the same shrinking from conflict with vice, the same instinctive dread of evil. Both fall victims to circumstances, of which they form the centre; and all that in Hamlet expresses itself in passionate soliloquies, in vivid bursts of word and gesture, may be inferred from the very silence of Ophelia. She very rarely speaks, yet her silence is more eloquent than words; and the little that she says throws a clear light over her whole character.

Thus we see that in the deeper bases of their natures Hamlet and Ophelia resemble each other. Yet there is a wide difference. Hamlet is the man of intellect. Whatever forces may oppose him, however powerful his enemies may be, we feel that he, if he only has the will, is able to oppose them, cope with them, and even if need be crush them. He is conscious of his own intellectual superiority; and this very intellectual power in the end is the cause of his downfall. For, in indulging his contemplative tendencies, he has fallen into the habit of "thinking too precisely on the event"; and this tendency, combined with his natural disinclination to injure any one, causes him day after day to put off the great deed of avenging his father's murder, till in the end his activity is too late. On the other hand, Ophelia does not strike us as being very intellectual; but she makes up for this lack of intellectual power by the very force of her imagination, the unconscious power of her tenderness. She is an intelligent girl, rather commonplace in mind it is true, but with plenty of good sense; and whenever she speaks she speaks with exquisite grace and propriety; but she is not at all intellectual. She is timid; and her character is such that it requires some stronger character to cling to and twine round, as the ivy clings to the oak. Under the strengthening power of such a support, and under the influences of congenial circumstances, her modesty, grace and tenderness would have

sufficed to constitute a perfect and happy human creature. But the only strong character she could really cling to, the only heart which was worthy enough to have the pure love of her heart lavished upon it was Hamlet's: but through the force of adverse circumstances she seems to be estranged from Hamlet, [illegible] able to the existence of such a gentle and innocent creature: and as a natural consequence amid the corruptions of an evil society, without energy to resist, or strength to endure, she succumbs to the forces at work around her, and passes away from a world which is not worthy to keep her.

We do not know much of Ophelia's childhood, though we are given a clue to it in some of the utterances of her after-life, some of the snatches of song which fall from her lips during her insanity. Perhaps she was the child of a beautiful and delicately-built mother. She may have lost that mother at an early age and been consigned to the care of some rough nurse. Her father, of course, would never have cared to enjoy the company of his child, for even afterwards he shows himself quite indifferent to her joys and sorrows. Ophelia must have wandered among flower-beds and by river streams; for even during her madness she could distinguish between different flowers and give to each its appropriate sentiment and clothe each with its appropriate thought. Her favourite flowers seem to have been violets, pansies, daisies, and columbines. The quiet unobtrusive nature of the rural scenery of some country place seems to have fused itself into her very heart; for never in her after-life in the Court do we find her intruding herself on others. She always kept herself in the background, and only came out of her quiet retirement at the command of others. Ophelia's childhood, then, must have been a very happy one, happy at least to such a nature as hers. But out of the privacy of such a life she passes directly into the evil atmosphere of a corrupted Court. She is placed immediately about the person of the Queen and is apparently her favourite attendant. Gertrude, indeed, always seems to have liked Ophelia; and her affection for this pure-minded girl is one of those "beautiful redeeming touches," which we find so often in Shakespeare. Almost any other author would have depicted her without a single alleviating trait; but Shakespeare with far more effect, as well as with far more truth, shows her to us with such a mixture of good and bad traits as makes us feel

that her crime was rather the result of outward circumstances than a prompting of her inner nature.

Ophelia, then, is placed within the circle of the Court, and it is in this position that we are introduced to her. But she receives no gain from its wickedness. She passes unhurt through its corruptions, not because of any extraordinary intelligence on her part, but purely because her character is so simple that she is totally unconscious of all the wickedness existing around her. Her wisdom is the wisdom, not of intellect, but of instinct, the pure wisdom of perfect truth, which she has drawn from the very heart of Nature herself; and this it is, which enables her to pass like a pure rose unconsciously through the wicked world, taking everything as natural and not inquiring into the causes of even the most questionable action. She is so young that neither her mind nor her person has attained maturity; and her very innocence is the cause of her helplessness. She beats herself against the prison walls of the world around her, like the weary bird caged by its persecutors. And when we picture her in this condition, how natural does her love for Hamlet seem. Here she is left alone on this wide waste of a world, with no one really able to sympathise with her. Her father is engrossed with the affairs of the State; her brother does not care for anything else than the gaieties of Paris; and the only being to whom she can look up to, and who is always about her, is Hamlet fresh from his University. Accordingly the young and inexperienced girl falls in love with this handsome and accomplished youth, "the expectancy and rose of the fair State," "the observed of all observers," the only being who like herself indulges in pure contemplation and meditation. Her pure heart goes out in loving admiration to him, and she loves him; and it pleases us somewhat to know that her love is not wasted on an unfeeling heart; for Hamlet loves her in return, loves her with as pure and passionate a love as such a woman as Ophelia would naturally inspire in such a man as Hamlet. She is the only pure and honourable human being, except Horatio, about the Court; and what could be more natural than that he should long for her society as a relief from the stagnant wickedness around him? The first time that we see her is in the midst of a conversation with her brother. When he warns her against Hamlet's importunities, she answers half-unconsciously "no more, but so"; and again with the same modesty, yet with an involuntary sense that

perhaps he was right, she promises to obey his advice. Immediately afterwards her father, in his own pompous and overbearing manner, commands her to deny all access to Hamlet. She says very little, but the little that she says gives us the clue to what is really passing in her mind. In short and bashful utterances she discloses the confession of Hamlet's love to her; but she is scarcely aware that in betraying how deep an impression the affection of her lover has made upon her, she is also betraying how deep is her own love for him. She feels deeply, but is unconscious of her own feeling; and as a necessary consequence of this unconscious love on her part, she silently submits when her father forbids her to encourage Hamlet. Gentle being as she is, she is unable to disobey her parent; but, as some have said, such an absolute obedience on her part in such a matter as this, is not the result of weakness. It is rather the result of her early training. Accustomed from her childhood up to obey her father, she has now no thought of disobeying him; and in this blind obedience to his commands she shows that she loves him better than she loves herself.

Some would censure Ophelia for the part she played in the scheme employed by the King and Polonius to wring out the secret from Hamlet. But here also she unconsciously makes herself a tool to the evil designs of others. She is so natural that she has no suspicion of guile; and her own soul is now wholly engrossed with her own innocent design of finding out whether Hamlet really loved her. She believes that Hamlet ought to have followed up his early gifts to her by further tokens of his love; and she now wants to test him by returning those gifts. But Hamlet is not introduced to us as a lover. That period of his youth is passed for ever. We now behold him plunging madly in a sea of troubles and perplexities. The Ghost has disclosed its terrible secret to him; and the very strength and purity of his love forbids him to think of linking his blighted destiny with Ophelia's. He cannot marry her, young, gentle and innocent as she is, with that awful secret hanging over him. In his distraction, then, he overacts the part he has allotted to himself, and madly outrages her, all the while upbraiding himself for his own unworthiness. The oft-repeated words "Go to a nunnery" sound like the knell of his love, for this is the last time that he sees her in private. Ophelia answers him in two short sentences, but a world of meaning, of

agony and sorrow and despair, seems to be implied in these words. When Hamlet is gone, she breaks out into a beautiful lamentation, and there is only one allusion in it to herself. This is uttered almost unconsciously and serves to show the greatness, the purity and the unselfishness of her love. She believes Hamlet crazed; she feels herself forsaken and outraged, and her heart is almost bursting with its own secret burden. In this state once again we see her in her right mind. She is supposed to be one of the quiet spectators of the dramatic scene introduced by Hamlet; but she has no eyes for anyone or anything except for Hamlet. Immediately after this comes the murder of Polonius by Hamlet. The news may have been disclosed to her suddenly while she was busied in one of her simple employments. She is told that her father is slain by her lover in a paroxysm of insanity. Her overcharged mind is unable to bear the grief for her father, which is almost overwhelmed by the deeper grief for her lover, whom she knows she never more can see. She is entangled in a web of horrors from which she has not even the inclination to free herself; and what is the result? Unlike the frantic frenzy of Constance, the madness of King Lear, Ophelia's insanity is the utter destruction of the reasoning powers. It is total imbecility. Her sweet mind lies in fragments before us. We can trace all her simple thoughts, for she does not go beyond the ordinary events of her plain life. The death of her father, the loss of her lover, intermingled with snatches of old ballads, perhaps learnt in her youth, and pretty fancies about flowers, and broken recollections of the scenes of her girlhood, are the only things which we hear from her, the only thoughts which run through her innocent and shattered brain. "Her wild aimless fancies, and her quick transitions from gaiety to sadness are all equally purposeless; but they are all so true to life that we forget to wonder and can only weep."

> "Thought and affection, passion, hell itself
> She turns to favour and to prettiness."

Some of her songs are said to be rather immodest; but this very immodesty is surpassingly touching; for it shows us as nothing else could that she is totally unconscious of what she is saying. And we cannot blame Ophelia for this slight tinge of coarseness that her character exhibits. It is not the natural expression of her

heart; bnt rather the result of her early training. Brought up in the wild country, perhaps some rude nurse had been her only companion; and the little girl might have learnt from her the rustic lays which she now unconsciously reproduces. We cannot blame her for this. We rather wonder that with such a training as she seems to have had, and in the midst of so much corruption, she could lead the pure life she has led and be so touchingly unconscious of the corruption around her.

Finally, with even the King pitying her, she passes away from our view with a pious ejaculation upon her lips, an ejaculation forced from her even in her madness—the only one who goes to her death with such unconscious innocence. The last sympathetic account we hear of her is from the miserable Gertrude. The fashion of her death is just the fit one for her. Unconsciously, while singing songs and gathering flowers, she passed away in springtime to a land, where perhaps she would have more sympathy given to her than had ever been her portion in this world. She had nothing more to live for. Hamlet was irrevocably lost to her; Polonius was dead; Laertes is so absorbed in himself, as to be almost unconscious of her; and she has no one to cling to. The only happy thing that is left for her is to die.

"The character of Ophelia," says Mrs. Jamieson, "bears a certain relation to that of the Greek Iphigenia. Iphigenia led forth to sacrifice with her unresisting tenderness, her mournful sweetness, is doomed to perish by that relentless power which has linked her destiny with crimes and contests, in which she has no part, but as a sufferer. Even so poor Ophelia, divided from herself and her fair judgment, appears here like a spotless victim offered up to the mysterious and inexorable fates".

"For", says Goethe, "it is the property of crime to extend its mischiefs over innocence, as it is of virtue to extend its blessings over many that deserve them not, while frequently the author of one or the other is not, as far as we can see, either punished or rewarded". "But there is a God above."

# THE MADRAS UNIVERSITY CONVOCATION ADDRESS.

By Surgn.-Lieut.-Col. W. G. King, M.B.,
*Sanitary Commissioner to Government.*

### CONGRATULATIONS TO THE NEW GRADUATES.

Mr. Chancellor and Gentlemen,—The object aimed at by the Senate of this University in requiring the delivery of an address during Convocation, is that the graduates sent from its portals shall receive parting words of advice from a representative. The Chancellor has been pleased to confer upon me this honorable bnt onerous duty. Honorable it certainly is, to be in the position, for even this fleeting occasion, of speaking in the name of an University which, though young when compared with the European institutions with which it is affiliated, has made for itself, by the excellence of its educational work, an eminently respected position in the world of letters; onerous it certainly is, when I recognize that my duty towards you—the flower of the youth of a population of 35 millions—demands that I should so direct your thoughts, at the moment when, full of youth, vigour and ambition, you buckle the armour and choose the weapons with which you enter the lists of life, that for you and these millions substantial benefit shall be obtained, and that you fail not in your efforts by reason of unguarded chinks in the mail, or by choice of unsound weapons. There is no parting of even casual acquaintances that does not in the word "good bye" of the West or the "salaam" of the East, profess an anxiety that, in the uncertain future, all shall be well for whom the blessing is uttered. But, perhaps, there is no moment in the career of the youth that is more likely to call forth sincere wishes for his welfare and more hopes for a happy future than when he bids farewell to *Alma Mater.* At her feet has he listened to words of wisdom; under her influence has he found pure ambition unsullied by the seeking of self. In such partings, there can be no regret or repining as to the past; with both graduates and *Alma Mater,* there can be but the satisfaction of mutual obligation correctly fulfilled in the task of initiation, and the looking forward to a career worthy of the principles inculcated. Graduates, accept, then, the congratulations of the Chancellor and Senate of the University that you have faithfully toiled to fit yourselves to be worthy of the degrees, which you this day assume. These are a sign to the outer world that you have rendered

yourselves worthy, after due and careful examination, to take rank with the learned professions.

TO GRADUATES IN LAW.

On you, Graduates in Law, will henceforth fall the right in Courts of Justice to defend the poor from oppression, and the rich from being the prey of the avaricious. Intimately allied with the ability, at times the disinterestedness, and always the honor with which you exercise your profession, are the contentment and prosperity of your country, and the stability of its Government. The "majesty of the Law" is, indeed, no idle term. Gentlemen, it would be false modesty on my part were I not to allude to the practical fact that you have elected a profession that, in this Presidency, is popularly regarded as likely to be overstocked. The struggle for a career in which wealth is desired must, therefore, become increasingly keen. There are methods of gaining practice that are strictly professional, and others which are distinctly not so. I allude of course solely to the ethics of your profession, which, though frequently quaint in the esteem of the outsider, have survived the test of many centuries of practice, and have been found necessary for the preservation of its status. Frankly, then, let me tell you that in starting upon your career, you may be confronted with the necessity of earning your fees quickly, whilst the methods that present themselves, though perfectly honest in the ordinary acceptation of that term, may not accord with rigid professional ethics. In that moment, remember not only your own honor as professional men—not, I repeat, as ordinary citizens, on which subject I need say nothing—but that of the University which has given you the right to practise. How well this lesson has been learnt by your predecessors, and how nobly it has been acted up to, the records of your profession in this Presidency show. Indeed, when we reflect upon the peculiar conditions which surround both the administration and practice of Law in this country, and the purity with which it is maintained, you have sound reason to be proud of being this day enrolled members of so distinguished a profession.

TO GRADUATES IN MEDICINE.

To you, Graduates who have embraced the noble profession of Medicine, there is before you a career that gives unusual opportunities of abnegation of self, and but little of earning wealth. It is true a fair competency may be earned, for "the labourer is worthy of his hire;" but it is not possible that acquisition of fees shall be the measure of your success in life. In short, the mere fact of your laboriously acquiring the ability to practice medicine and surgery shows that you are possessed of what is recognized as "professional instinct," or, in other words, that

you have certain tendencies that, although present in all your fellow-men, are more readily susceptible of development in you. It must dominate your whole lives, and indeed if it were not possessed, not only would not the modest competence—the hire of the labourer—be forthcoming, but, I believe, the first effort of the graduate would be to seek a living elsewhere. This instinct leads you to regard your whole energy, your utmost mental and bodily powers as devoted to the interest of your fellow-beings, in the effort to relieve suffering and, with God's blessing, to save life. It is with the hope of ascertaining some further knowledge—of advancing professional means—to these ends that we find medical men whose names are frequently unknown to the outside public, but are revered by the profession, have devoted year after year of toil by night and day. As I read the rapidly multiplying medical journalism of the day, I think there is room for doubting whether, as a body, there is any class of men more determined to solve the mysteries which enshroud the wonderful work, and workings, of Nature. To those not initiated in the profession, it would bring the smile of amused wonder that what are frequently in themselves such small facts are the result of so great labours. Years of toil are freely given to show that the function of a nerve is so and so, and that a secretion produces such and such a result, that a bacillus can live under this condition, and dies under that. The sole reward reaped for such labour is the satisfaction of having made professional advance—of having established a fact—of having added a solitary brick to the grand structure, which represents the temple of Æsculapius. It is this instinct which enables the medical man, worn by physical and mental toil, to sacrifice cheerfully the long-looked for moment of rest, that when himself distressed, enables him to exhibit, in the interests of his patient, a calm and cheerful aspect, that, in the midst of the turmoil and danger of battle, enables him to perform operations when a moment of indecision, or a tremor of the hand, would be fatal to his patient; it is this that leads him in the midst of epidemics to risk his own life and, as the annals of the profession show, to sacrifice it ungrudgingly. Guided by these sentiments, and supported by the honorable traditions of the profession, which are summed up in the declaration you make this day—that "you will never deviate from the straight path of the honorable exercise of your profession by making your knowledge subservient to unworthy ends"—you will secure the esteem of your fellow-citizens, prove yourselves worthy of this great University and, above all, in the knowledge of having aided in giving hope and health where before were misery and pain, earn a happiness that can never pall.

DO NOT DESPISE THE PAST.

In the midst of present-day efforts towards advance, do not despise the past; search the literature of your predecessors, ascertain what is useful by applying modern methods of research, and, when their suggestions have stood these tests, act thereon. I often hear people talk glibly of "Hindu medicine" and "European medicine," as if they were different sciences, and, in the lower walks of the profession in this country, there are, at times, found persons who pander to ignorance for the sake of gain, by letting it be known that they combine these methods, or, being equally proficient in both, are willing to treat the patient as he chooses. Gentlemen, there is no such thing as Hindu medicine or European medicine; the science and art of medicine and surgery are cosmopolitan. Medical science of the day is not the product of a single nation, but represents the outcome of labour and thought, through long ages, of nations throughout the world; and despises not theories of the most ancient origin, or facts that will brook investigation founded upon the experience of the uncultured medicine man of Central Africa, or the empiricism of the squaw of Kamaschatka. There is no new opinion worthy of discussion ventured in the medical press of the day that is not subjected to scrutiny within a few weeks in all quarters of the globe, and, not till criticism has exhausted itself, is it admitted as a factor in the store of professional knowledge. Hence, the profession forms at the present day a huge society composed of members of every nation on the earth—linked together by the common end of advancing medical knowledge. In short, it may be held that the treatment of disease laid down in any standard work of the day represents the opinion formed after the holding of a gigantic professional consultation of medical men in all corners of the earth. I have, however, advisedly warned you to search the literature of the ancient leaders of medicine; both Hindus and Mahomedans will find much to be proud of, in that although handicapped by absence of appliances that figure so largely in modern medicine, important knowledge of the present era has been anticipated. For example, although, as usual in interpreting Sanskrit texts, there may be room for doubt whether interpolation has not occurred, it would seem that the writings of Dhanwantari not only disclose a knowledge of inoculation for small-pox, which unfortuntely is at times practiced by a special class of Brahmins to this day, but of vaccination properly so-called; that is to say, the use of lymph derived from the cow that has been inoculated intentionally, or accidentally, with small-pox. The following is, the text I allude to:—"Take the fluid of the pock on the udder of a cow, or on

the arm between the shoulder and elbow of a human subject, on the point of a lancet, and lance with it the arms between the shoulders and elbow until the blood appears; then mixing the fluid with the blood, the fever of the small-pox will be produced. * * * *

"The small-pox produced from the udder of a cow (*gostanyodacum*) will be of the same gentle nature as the original disease, not attended by fever, not requiring medicine. * * * When inoculated with the fluid from the udder of a cow, some will have a slight fever for one day, two, or three days. * * * * There will be no danger and the whole will disappear in three days."

If this translation be correct, it will be seen that the operation of vaccination, which has been of such enormous benefit in the saving of human life, and which, as the first instance of a modified diseasebearing virus producing immunity, has led to modern research in protective inoculation and serum therapeutics, had been employed long before 1780. That the experience of a physician practising many centuries before the Christian era should be built upon by a Pasteur, a Koch or a Haffkine in the 19th century proves, I think, fairly well, the continuity of the labors of the medical profession. But you must not assume that the wretched mixture of ignorance and superitiston, which passes for medicine as practised by the *Vydeen* of the day, represents the knowledge of by-gone centuries. Ancient Hindu leaders of medicine were not only acquainted with the action of drugs and of many of the more refined operations in surgery, but they had a very considerable knowledge of the anatomy of the human body derived from a highly unpleasant mode of dissection; for the high caste Hindu of the past held it incumbent upon him to investigate Nature's mechanism, *in corpore viti*. Not so, however, the modern *Vydeen* who mumbles *muntras* whilst pounding his confection of multitudinous drugs, in the presence of the dying patient; he is in the position of an engine-driver who assumes charge of a complicated machine, of which he knows nothing.

### GRATITUDE TO THE DOCTOR.

Gentlemen, if my arguments so far have not convinced you of the cosmopolitan nature of the profession, I am sure you will be more disposed to admit it if I remind you that, in the dim vista of the past when Charaka wrote, the disease which to this day defies the best efforts of the medical profession, namely, "evanescent gratitude," had been correctly diagnosed, and an effective treatment for it had been excogitated. As the disease is not mentioned in current books, and can only be met with by you in your future career as practitioners, the following well-known doggerel may enlighten you as to its nature :—

" God and the doctor we alike adore
When sickness comes, but not before;
The danger past, both are alike requited,
God is forgotten, and the doctor slighted."

Now, Charaka held, as the profession admits to this day, that when the patient was poor and worthy of help, the physician should be content with "an increase of knowledge, and the gratification of his desires," or, as I have put it, in my opening sentences to you, of his "professional instinct," "in having an opportunity of performing a good action." But, here, Gentlemen, is at once the diagnosis and cure of the complaint, as quoted by this authority: "Should the patient prove ungrateful after being cured *his holiness, and his good fortune will pass to the physician.*" For the sake of your own peace of mind, and your banking accounts, I trust that but few of your patients will be called upon to dispense with these unmarketable commodities.

TO GRADUATES IN ENGINEERING.

Of you Graduates in Engineering, I may well ask, What is the summit of your ambition? Given time and money, humanly speaking, there is nothing that cannot be accomplished by the Engineer. You may lift up and move houses and mountains, bring forth water from the bowels of the earth, teach us how to kill each other quickly and scientifically, show us how to talk with those dearest to us at the uttermost ends of the earth, link together oceans, and render the passage of our commerce equally facile in air or water. Such is the glorious rôle of your profession; but, again, what may I ask is the limit of the ambition of you who have been lately initiated in its mysteries? You have received in this University knowledge sufficient to found docks, lay out gigantic irrigation systems, or build pyramids. But, it takes little knowledge of the condition of the country to know that the majority must aspire to be members of the public services,—necessarily involving the fulfilment, in the majority of cases, of stereotyped duties from one year's end to the other. Those who are not thus absorbed may, perhaps feel that they have fallen on evil days, when the Sircar has no appointments to offer them. Gentlemen, I trust for your own sakes, and for, the sake of this Presidency, that this is not so. For the Engineer who will be up and doing, who will trust to his own brains and efforts, there must be a great future.

THE CONGESTION OF THE AGRICULTURAL POPULATION.

It is a point frequently reiterated in the Press that the population of this Presidency is poor. As a generalization, this is not correct,

although there is, undoubtedly, a portion of the population, as in every other country, that lives from hand-to-mouth. That this proportion is large in this Presidency, and has so little resources, that in the event of unfavorable meteorological conditions occurring, help from public funds has to be bestowed, is due to the simple fact that the bulk depends on agriculture. That calling is full of risks in a country where at times, not even the Meteorological Observer can tell us what has happened to the monsoons. The absence of timely rain sufficient to produce a failure of crops, brings about conditions that are analogous to the sudden occurrence of a "lock-out" amongst manufacturing labourers. In an European country, I question whether the labouring poor to whom such a disaster occurred could, without extraneous help, be prevented from dying not of chronic malnutrition, which attends the famines of this country, but of acute starvation; for climatic conditions demanding expenditure on house-rent, fuel and clothing, render the struggle of the poverty-stricken in cold countries less dubious. The bulk of the population, it seems to me, if it must be classed as poor, is so not because of the absence of fertility of the soil nor because of the taxes of Government, (which are in reality light in comparison with those inflicted on other countries,) but because its population is so largely agricultural that any disaster affecting this special interest is felt throughout the length and breadth of the land: the people belong to the same workshop and are liable to be all "locked out" together. When bad times come to the European farm hind, other outlets for his labour are looked for, and are, in great part, obtainable. If the fighting blood runs in him, he finds solace for the lost plough in the army or navy; if he prefers the wonders of the grimy town, he becomes absorbed in the manufacturing or mining populations, if both fail, he leaves home and country, and goes to open up new colonies, and expand "Greater Britain." In short, it is not because agriculture is a particularly unprofitable way of gaining a living in this country; the result would be just the same if our poor formed the bulk of those living by the making of porcelain cups, and it was found impossible at intervals to get the clay required. For the time, precisely the conditions of a famine would occur as it affects the true agricultural coolies; that is, no labour being available, no food can be obtained. Now, you must remember that in these remarks I do not enter into the vexed question of the present financial condition of the ryot, properly so called, or what it should be—that I leave to experts as a bone of contention. I am merely regarding the calling as one that should, at least, afford a hand-to-mouth living for the labouring population. What, then, is the solution of the problem? How are the public funds to be re-

lieved of ever-recurring stress of famine? How are the poor to be kept from the misery and suffering involved? As Engineers, you will doubtless repeat to me Sir Arthur Cotton's well-known formula—"irrigate, irrigate." Yes, do so by all means where possible, and thus, at least, mitigate the condition of irregular distribution of rain; and carry your railways and feeder roads forward that the irregular distribution of crops that results may be compensated for. As to the latter measures, I am aware their utility has been questioned. No one, however, who remembers the disastrous—I may say ghastly—results of the famine of 1877 can say otherwise than that vastly improved railway communications, which have been a distinct feature in the famine policy of Government since that time, have proved a blessing; indeed, irrespective of the facilities for securing relief, of which practical illustration was afforded during the late famine, it is possible to realize that what was a period of great distress to the population of the affected districts was a source of profit to that of others. No; useful as these measures are for mitigation of the evil, they are not sufficiently radical in nature.

DIVERSITY OF OCCUPATIONS.

I suggest it must remain with you to solve the problem by finding for yourselves, and the people, occupations hitherto unknown in this Presidency. You must relieve the soil of the numbers that depend upon it, and thus elevate the condition of the agricultural labourer.

Twenty-five years back, it would have been impossible to make the suggestion to you, on any rational basis; but, within the quarter of a century, the aspect of matters has much changed. The possibilities of industrial pursuits are decidedly better; facilities of transport by sea and land have much increased, whilst the *sine quâ non* of manufacture—coal—is available by the million of tons within the country. From the Singareni Coal mines alone in 1896, the output was 262,000 tons of coal, and from all India nearly 4 million tons, or an increase at the rate rate of half a million tons each year. With rival lines running from Bezwada, it may be certain that, in their own interest, the rates for coal transport received from Singareni will diminish. Whether this be so or not, it is obvious that if Railway Companies found the demand for coal increase, it would be possible to facilitate transport to various parts of the country that have not as yet received the precious commodity. In short, it may be taken for granted that increased demand would be followed by more favourable terms of transport. If this all-important problem of fuel be solved, what is to prevent a successful career to the Engineer, and still more to the increased prosperity of the people? Railways now traverse tracts of country where lead exists, so rich in silver

that it has been held it would pay to work it for the sake of this alone, where copper awaits treatment, where iron ore of the purest varieties demands but coal to smelt it, where kaolin is ready for the hands of the potter, where corundum is willing to yield its tribute of aluminium. Are you content in a country where the majority of the people wear cotton clothing, and suitable grass is to be found, to accept imported paper? Where fluxes and glazes are available to import your stoneware and glazed pottery? Must you look to Japan for your supply of matches —a country that within the memory of this generation devoted a few square yards of a single port to European trade, and would not accept the advantages of international commerce, till it received half an hour's teaching of what the resources of civilization were at the cannon's mouth, at Simonasaki? Must you import from foreign countries the sheets of brass which you use for your domestic vessels? In a country that has no stint of fibre must we ask for a piece of foreign-made twine before we can be quite sure a parcel is safe? Must even the glass of our windows and our bottles be of foreign manufacture? Will you leave untouched the 60,000 horse-power available at the Periyar Works, or the riches obtainable from the phosphatic deposits in Trichinopoly, and not dare to enter a trade on which the Americans have embarked many million dollars successfully?

OUR WEAK POINT.

To my urging that you should be up and doing, that you should solve the problem of finding new occupations, and consequently more certain methods of living than offered by agriculture, you may well retort that it is for the capitalist to pave the way, and that engineering skill "will do the rest." This dictum must be correct for most countries, and would be correct in this, did it not present the peculiarity of the passive attitude of the capitalist, which it is absurd to ignore. The condition of the country demands that there should be no "wait-till-you-are-called-for" policy. Whilst it has been possible, as I have said, by increasing railway communication throughout the country to produce some influence towards equalizing the prices of grain, it has not been possible for it to equally distribute education. The money of the country is lodged in the hands of a special class, whose education does not extend beyond what can be acquired by a knowledge of the vernaculars; as it happens, this class is highly conservative; it has for generations practised a simple way of making loans grow by accumulation of interest—in a manner that gives colour to the supposition that land which can feed the ryot, fatten the sowcar, and hold the Government solvent, would not be so poor an investment as it appears, were certain social

habits as to extravagance in ceremonies not encouraged, [illegible] evolved that would, without injustice to the sowcar, curb rapacity. The commercial instincts of this class rarely aspire to anything beyond buying raw products from the producer, and selling them at commercial centres; investments by huge companies for manufacturing purposes are still very rare. *This is our weak point.*

THE ENGINEER AS AN ADVISER OF THE CAPITALIST.

I hold it is for the Engineer to break down this conservation. The capitalist of the country is shy: but he has no lack of brain-power. It is, however, impossible for him, on account of lack of general education, to grasp methods of making money that he never heard about, or witnessed. I see no reason, however, to believe that if he were approached by men who took care to work out figures and details of reasonable industrial projects, that the native capitalist would not rise to the occasion. It is no use telling him that electricity can be developed by the aid of the 60,000 horse-power available at the Periyar Works, and that therewith he might supply the town of Madras and the towns in the south with light; work their cotton mills, lift for them their water-supplies and sewage, develop their means of locomotion by electric tramways, and crown Mr. Chatterton's project of producing aluminium from the stores of corundum with success; it is no use telling him that Kurnool and Salem yield the purest of iron ores, and that the cutlery, and the machinery of the country should be produced from these, unless the whole problem be worked out and placed in his hand; for the simple reason that he knows nothing of what appliances are necessary, as to where to get them, or what their cost would be. Government, in the interests of a public slow to appreciate the advantages of new resources, has collected many facts concerning these and allied projects, but necessarily many details remain in the form of problems to be solved. For example, granting that there be the power available at the Periyar, there remains the question of how most economically to transmit the electricity; granted there be iron in Kurnool and Salem, there remains the question of how best to obtain fuel. There may be room in such matters for merely suggesting a particular build of wagon for transport, the opening of a few miles of branch line or the improvement of a special port, the adoption of particular treatment by a coal that will not coke, or other change of methods to meet unusual conditions; but it is for the Engineer to take such matters into consideration, and, if necessary, by special inventions to find a solution for these problems. It is for the Engineer to remove such matters from the sphere of possibilities to that of practical application. When this is done, no longer will 61 per cent. of

the population be dependant upon erratic monsoons, and no longer will the names of Graduates in Engineering occupy so limited a space in the Calendar of the University. Until this is accomplished, although the advance of technical education (which all must recognize as a most valuable direction in which official energy can be, and has been of late, applied) may produce here and there a skilled or artistic artizan, it cannot be hoped that it will aid materially in the production of new industries. It is of course well to get the cart ready for the horse, but not of much use to place the cart before it. Indeed, if the absence of manufacturing industries is in part due to want of initiative at the hands of indigenous Engineers, it would seem—unless they are to be regarded as devoid of ambition or inventive power—that this is the class that first (or at least synchronously with the artizan) should receive attention as to technical education. By this I mean that young and selected Engineers who have received the general education of their profession, should be encouraged to become specialists in industrial manufactures. This would seem best attempted by offering, at the public expense, to send them, under the guidance of experts, to inspect, and study at, European manufacturing centres. The rapid advance of Japan, within the last few years, has been greatly facilitated by freely adopting this liberal policy.

TO GRADUTES IN ARTS.

In your case, Graduates in Arts, it remains an open question what your walk in life will be. You have to-day been given the well-earned right of attaching certain magical letters to your names, that guarantee to you a proud position in the world of letters and society, that will be gladly conceded to you in a Presidency where education is help in the highest respect. Gentlemen, our friendly rivals in advance in other parts of India know us as inhabitants of the "Benighted Presidency"; for no other reason that I can think of than that we are geographically so distant from them that we cannot share with them their special sources of light, or even ascertain their precise nature. With the East Coast Railway completing our connection with the north, and conferring upon us the pleasure of better intercourse with our neighbours, it may in time be ascertained that our system of education has provided us with executive and administrative staffs for conduct of official work, such as cannot be found elsewhere. I think our graduates in Arts form a considerable proportion of these staffs, and much of their efficiency must be ascribed to this desirable leaven. Indeed, whether we look to the Revenue, Judicial, Medical, Sanitary, Engineering or Forest Department of Government, we have nothing

to blush for. Creditable results in administration have been possible of achievement only in accordance with the rapid growth of education, of which Graduates of this University represent the perfect fruit.

TO LICENTIATES IN TEACHING.

Licentiates in Teaching, to take your place in a profession which has secured such important influence on the weal of the country is an honor that was well worth striving for—even at the cost of much "midnight oil." May success attend your efforts to further strengthen and confirm the important work so ably fulfilled by the Educational Department.

A LADY GRADUATE.

I am sure, Mr. Chancellor, it will give you pleasure to note that this is the first Convocation that has seen, in this University, an Indian lady obtain a degree in Arts, and this in a highly creditable manner, she having passed the three branches at once.

MUHAMMADAN GRADUATES.

It is further a matter of congratulation that there appear no less than six Muhammadans on the list, the highest number that has yet graduated at one time. The difficulties before the Muhammadan Arts student are by no means light: a certain amount of Arabic is demanded for purposes of religious instruction, Hindustani must at least be grammatically written and spoken, whilst an acquaintance with Persian is necessary for the correct understanding of the conversation of the more refined, and of the poetical literature chiefly used. Irrespective of other disabilities, therefore, he starts heavily handicapped by the time spent in acquiring these languages: but, the greater the difficulty to be overcome, the greater is the victory achieved. I trust this accession to the band of the educated this year, implies a determination on the part of our Muhammadan fellow-subjects not to be left behind in the race of life, and to revive once more that diligence in the search after knowledge in science and art, which history clearly demonstrates distinguished the early followers of the Prophet.

ADVICE TO GRADUATES.

Graduates, of whatever race or creed you are, and whatever the profession you ultimately adopt, you will henceforth be classed with the men of "light and leading" in this Presidency. As such you this day assume a heavy responsibility, which is reflected in the promise which you have solemnly made before this assembly, that you will labour in the cause of "morality and sound learning, and will uphold and advance social order, and the well-being of your fellow-men." It is to you, as

educated fellow-countrymen, that the people look for guidance in the midst of perplexities, which at times beset them in their endeavours to reconcile the influence of Western civilization with their timidity as to change of prejudices and customs which, in their condition of imperfect enlightenment, they are apt to conceive represent their religion. Beware that when your advice is sought in such matters, you bring to bear upon them broad and enlightened views, such as can be gained only by diffuse study. It will not suffice that you have, in the course of your college education, absorbed the ideals of political economy and political freedom. These must be tempered by adjustment to existing facts, and their unbiased appreciation. There must be no such thing as forming a theory and fitting facts to it; you must sit in judgment upon facts, and pronounce the verdict. To effect this correctly, your study must not be confined to the history of a single people; you must acquaint yourselves with the political development, the present motives and aspirations of different countries, and comprehend fully their resources. When these essentials have been mastered, (and I may state that their study would demand the best part of a life to be devoted to it,) you would become of use to your country, and to its Government. In advising you to be diffuse in your study I imply not only that you should call to your aid standard literature, but that you should not neglect the conveyors of modern thought and opinion—the journals and magazines of the day. Nothing can be more erroneous than that because you possess such and such a shade of thought, you should neglect literature expounding the opposite. Not only are you more likely to have thereby the conceit of untenable opinions destroyed, leaving you in possession of those that can be defended, but you will reap the advantages of becoming acquainted with the frail parts of the defences of your adversaries.

POLITICAL REFORMS.

So far as I have been able to trace discussion in reference to political reforms in this country, I must frankly tell you that I think there is often too much adherence, under inappropriate circumstances, to our British methods. In Great Britain, the country is practically ruled for the time being by the party in power; in India the Government, even if its heads be nominated by either of those parties cannot, as to its method of administration, be influenced by it to any appreciable extent. In Great Britain, to oppose a party in power, there exists the tendency to exaggerate political incidents, or to appeal to the country with a popular cry. For the latter purpose, anything does for the time being, from the delights of the possession of "an acre and a cow," to the

prospect of financial redemption, by the production of eggs. Agitation thus brought about does a *minimum* of harm. In due time, the people who have been foolish enough to credit these cries find they are mere moves in the game of party politics, although the offspring of the hopes of a few fervent enthusiasts; thereupon, the party they had lately put in power, they turn out of office. In short, whether political proposals be founded upon solid facts or mere theories of enthusiasts, an educated public can soon settle for itself. By medium of journalism the truth is soon threshed out; it is possible to distinguish the grain from the chaff. But, in dealing with a Government constituted as it is in this country, political hopes raised that are merely theoretical, and are the offspring of the enthusiast wear a very different complexion. Such efforts cannot be regarded as mere ephemeral party moves; for there is no party to displace. Political theories are circulated amongst a public that has not at its disposal means of rapid enquiry, and discussion in cheap papers running through many editions per day, but to a public that takes the educated man seriously, and probably has not the advantage of hearing a word from his opponent. Under the circumstances therefore, each loyal educated man, who will take the trouble to fit himself for the task becomes a source of help to the people and to the Government of the country; but where mere babbling of the character indulged in Great Britain at the hustings by rival politicals is imitated, the cause of advance cannot be otherwise than hampered. Exaggeration or inaccuracy of statements leads to distrust; distrust of statements leads to disregard of advice. If, then, by strict adherence to these principles, and sound advice based thereon, the educated man has the happiness of securing for the people political advance and contentment, still more so is it his duty to see that their grievances are founded on facts. In all countries, the tendency is to weave much sentimentality with alleged grievances: but, in this, we are confronted with peculiarities of public opinion—taking that term as applicable to the masses and not to the educated classes—that demand special attention at the hands of well-wishers of the country. Indeed, the condition offers a position for a new and distinct class of political reformers.

EDUCATION OF WOMEN.

This peculiarity arises because the bulk of the people are ignorant of any other literature than their own vernacular supplies. That this possesses the intrinsic merit of the beauty of language, of which the people have a right to be proud, goes without saying; but modern opinion and modern thought find expression, necessarily, in a Western language. So far as I have been able to ascertain, no adequate litera-

ture on general subjects has sprung up amongst the people; the first thought of the man who writes in the vernacular is apparently to deal with subjects that are classical, poetical or religious; the people proper, therefore, are separated from the educated classes by a great gulf, yet the people, in the sense I have used the term, form the bulk of the inhabitants of this country. Even to speak of the educated as a class as I have done is, in some senses, erroneous; for the one blot on the success of education has been the impossibility of educating the females of the upper classes, from which educated men are chiefly derived. Is it then to be wondered at that their apprecation of modern advance is not only inaccurate and untrustworthy, but frequently founded on misconceptions that greatly impede their progress. The most obvious methods of accomplishing reform would seem, therefore, to be the aiding of the education of women, and the diffusion of modern knowledge by means of the vernaculars.

THE IGNORANCE OF THE PEOPLE.

As instances of how simply important ends can be subserved by attempting the removal of misconceptions by the masses, I would ask your attention to current matters of the day. Take the average intelligent villager, and ask him what he knows of former famines. As to that of 1877, and the errors of administration of that day (notwithstanding the most strenuous efforts and the unstinted flow of money to minimise the results when these errors were recognised), he will be able to tell you much. That period of universal distress serves as an era for him whence to date events. But beyond this he knows little as to famines of modern times, and will confidently assure you that in the good old days, when Rajah or Nawab so and so reigned, they were unknown; he assumes such calamities came with the British Raj! In a district where not seventy years back a ryot knew not till his village was surrounded by armed horsemen exactly how much "kist" he would have to pay, the fact has faded from memory; and the modern methods of adjustments of demands to the conditions of crops, and the enquiries upon which they are based are regarded as uncomfortable factors in existence. Such crude ideas make the ryot less content with his lot than he might be, but do not interfere materially with his prosperity. There are, however, conditions in which such ignorance by the people is liable to seriously impede their welfare. I refer to sanitary reform and the many problems connected with the health and comfort of the people, which are intimately bound up with local self-government, where the perfection of methods depends almost entirely upon the efforts of men of "light and leading" on behalf of

their uneducated brethren. Enlightened Municipal Councils frequently struggle in vain against erroneous theories formed by the people they are endeavouring to aid. Thus, a very favourite theory is that sanitary efforts are inimical to caste, and educated Indian gentlemen who spare no effort to preserve the health and lives of their fellw-countrymen are apt to be regarded as reckless innovators, and enemies to the religion of the country. This exhibits, on the part of the people, not only ignorance of the methods of modern sanitation, but a lamentable want of acquaintance with their own literature, and the intentions of a beneficent Government.

RELIGIOUS NEUTRALITY.

The religious question may be dismissed at once, by reference to the well-known fact that from the time when the British official in his island home wends his way as a boy with "shining morning face" to school, till he disappears from the official stage of this country a "lean and slippered pantaloon with spectacles on nose," he has had it forced into him that absolute toleration of religion is the leading principle under which the British Crown holds its away, throughout the various countries embraced in the Empire. "Render unto Cæsar that which is Cæsar's and unto God that which is God's," reflects in simple and forcible language the policy steadfastlypursued by Roman and Briton.

SANITARY SCIENCE IN DAILY LIFE.

As to the charge of interference with caste, those of you who have studied the learned shastras of your forefathers must have found ample room for opinion that not only is modern sanitation compatible with caste, but that caste itself, although allied with religious observances, is a magnificent and elaborate system of sanitation. Although I do not pretend that there are not several exceptions to this rule—exceptions, however, that frequently appear to form a compromise between what is possible in theory and in practice in a daily life of the simple nature foreshadowed in the shastras, it may well be held that were the sanitarian of the day armed with exact chemical, bacteriological and microscopical knowledge, to attempt a series of rules that should be a guide in public and private life, he could not excel these elaborate precautions for the attainment of freedom from inimical microbes. Probably, the vast difference that would be apparent in the modern rules and the ancient would be that, whereas owing to conditions found at the time of the latter first seeing the light, the protection of an educated class was sought from the uneducated with whom they were in contact, in the present day, when this distinction no longer so markedly exists, there would be exhibited through out the former the leading fact that

each member of the community is bound to so order his proceedings in daily life, that the interests and safety of his fellow-beings shall not be subservient to his private convenience; that is, modern sanitation is the perfection of liberalism, and demands the protection of the majority shall be obtained, even if inconvenient to the minority.. The bodily purity that the system of caste constantly aimed at maintaining was sanitary purity, in its bacterial sense. Very rightly these sanitary dicta were conveyed in concise language; for those outside the priestly caste it could serve no purpose to add reasons that could not be "understanded of the people." Hence sprang, as indeed must have been intended, the tendency to literalism, which characterises certain of the caste observances of the uneducated class of the present day. This not only favoured wide adoption but aided effectual practice; for of all sciences, I believe none depends more on the perfection of petty details than sanitation. For example, when it was laid down that clods of earth should not be torn with the nails, it was not necessary to add that abstention from this act would in this world protect from anchylostomiasis; that when it was forbidden to bathe in another man's pool, pretection from parasitic disease was aimed at; that when it was held a sin to defile water, the requirement was more in the interest of the community than of the individual, as s protection against water-borne diseases; that when the use of garlands, garments or shoes that had been worn by others was prohibited, the conveyance of infection was guarded against. But, in the absence of knowledge of Sanskrit in which these rules were conveyed, tradition which has been the method of transmission from generation to generation, has led to no little distortion of the original dicta; especially has it begotten a literalism which ignores the spirit of the observances, and assumed an inflexibility that it is apparent was not desired, under circumstances of a truly urgent nature. Indeed, tradition has in some instances effected gross preversion of original commands; in certain parts of the country, important facts have been ignored, leaving mere details of form which are tenaciously adhered to, under the impression that observance is complete. It would tax your patience were I to do more than allude to certain points in illustration of my meaning. Take, for instance, the important subject of the protection from contamination of water. To defile the collecting area from which water is derived, and to defile the water collected, in every imaginable manner, and then carefully take it home to drink, is an every-day act by our caste communities. The uneducated Hindu is satisfied if the evident defilement has not been effected by a member of another caste. Yet, he is directed repeatedly by the shastras in describing the methods of maintaining purity of the individual, and of conservancy of the community,

that no filth of any description shall be mingled with water-supplies, whilst the most stringent precautions are demanded of him with reference to the disposal of the most dangerous of all organic matter, viz. the excretions and secretions of the human body.

THE WATER AND THE BRAHMIN.

If a friendly argument on this point is started, you will be told that "water is pure, and therefore cannot be contaminated;" if the water concerned happens to be a stream, you will be assured that it is of no consequence how much filth reaches the water a few yards above the spot whence the daily supply is withdrawn, because the shastras declare that "flowing water cannot be made impure." Thus, rules that should afford a large proportion of sanitary protection to the many thousands who die yearly of diseases preventible by the most simple precautions, have become, as a result of perversion, inducements to gross sanitary errors. Possibly, one source of the error as to the inviolable purity of water has resulted from the well-known tradition that Brahmins are held as undefiled in times of distress on undertaking certain duties—for they are "as pure as fire and water." But, this does not imply that either the Brahmin or water cannot descend from the state of purity—held under certain conditions only. Others will support their contention by the statement that water is one of the great purifiers, and therefore cannot of itself be rendered impure. I believe there is nothing to justify such a belief; on the opposite, the laws of Manu teem with minute directions as to the collection, retention and withdrawal of water in a pure state; whilst, as to the Brahmin, it is obvious that much is demanded of him that he may maintain his purity. Were either the Brahmin or water, therefore, not capable of being defiled, such regulations would not exist. Thus, the following directions embrace fully the modern necessity for the purity of collection of town water-supplies, for sinning against which Maidstone has recently incurred disastrous mortality from typhoid fever:—

"Waters are pure, as far as a cow goes to quench her thirst in them, *if they flow over clean earth, and are sullied by no impurity*, but have a clean scent, colour, and taste." (Sir W. Jones.)

When, according to modern scientific requirements the chemist and bacteriologist have examined a water, it remains for the sanitarian to prove that it is "sullied by no impurities" and that the earth over which it flows is "clean." Till a sanitary survey permits this verdict to be passed, it is impossible to state that water is fit for drinking. But, the following quotation from Manu distinctly classifies water according to

its *grade* of purity, so that there can be no question of water being pure simply because it is water:—

"Stagnant water is more pure (and purifies more effectually) than water taken out (of a well or the like); the water of a spring is more pure than that of a tank; the water of a river is more pure than the former, etc."

Till within the last three years one might have questioned this preference for "stagnant water," using that term simply to imply that it is in a state of quietude. Dr. Frankland's observation upon the enormous bacteriological purification of water following rest in reservoirs, however, fully justifies it.

As to the claim of the inviolable purity of flowing water, the perversion of sense of the original shastras is most unfortunate, for it has led to wholesale pollution of rivers. What Manu says is not that flowing water is pure, but that "water is purified by its current," and this is a statement with which modern investigators fully agree. But, surely the mere assertion that water is "purified by its current" is but another way of saying that under certain circumstances water can be made impure, and again attain purity by a certain process. In accordance with the necessity I have alluded to of adding no explanations to dicta, the shastras give no definition as to the length of time which it is requisite to allow for the current to perform its work of purification. As a matter of fact, individual rivers differ enormously in the rate at which purification is accomplished. Thus, researches on the Dee, the Isar and Jumna show that purification is effected at varying rates in each, whilst all demand several miles of flow; but the last named, it must be interesting to Hindus to note, accomplishes its work, according to recent laborious investigations by Hankin, with singular rapidity.

### THE INFECTING-POWER OF THE CAUVERY.

But how great harm results from mere literalism by the masses, is demonstrated by an enquiry lately conducted by me as to date of first infection by cholera of villages using the water of the Cauvery. Here, roughly speaking, a flow of about 18 miles would seem to be necessary before water once contaminated by choleraic matter freed itself of infective power; whilst, in a recent outbreak of typhoid fever in England, it has been suggested that infective matter was conveyed by a river with a flood of 8 feet during a flow of 40 miles.

### SANITATION IN THE SHASTRAS.

Perhaps, one of the most frequent causes of outbreaks of cholera in this country is the custom of allowing pilgrims with unwashed bodies

and filthy clothing to enter sacred tanks. Yet this habit—so unsafe to the public interests—is apparently not justified by the shastras, which require the act of devotion "after having removed the dirt by means of earth and water." I am glad to say that in certain of our more important places of pilgrimages, the permitting of the conversion of sacred tanks into mere dhoby places is no longer regarded as consistent with veneration to the sacred character of the tanks, and the demands of sanitation. Our pilgrims now descend into sacred tanks with clean bodies and clean clothing.

In short, in seeking to place water at the disposal of communities free of any form of human contamination, our local self-governing bodies not only practise no innovation, contrary to caste requirements, but act in strict accordance with the spirit of the shastras.

SEGREGATION IN CONCORD WITH THE SHASTRAS.

Equally perverse of this ancient code of hygiene is the endeavour which has been made in another Presidency, during the present plague scare, to regard sanitary efforts towards segregation and disinfection as inimical to caste. A very little discernment, however, shows that the regulations demanding segregation have, in the first place, been disobeyed, and that it is chiefly the measures which necessarily followed disobedience that have been interpreted as breaking caste rules. In other words, if segregation is not in discord with caste, there can be no excuse for those who disregard regulations framed in the interest of themselves and their neighbours; whilst the endeavour to prevent action detrimental to caste, which such disobedience is alleged to have brought about, should be a prime reason for obedience. But, as a fact, if there has been anything taught by caste, it is the necessity for segregation as an aid against the spread of diseases. The declaration of a definite number of days of impurity,—usually ten, in the case of a human being after certain events, including deaths occurring in a household, or of acts by individuals, and of the purification of clothing and of domestic articles that have been in contact with impurities, undoubtedly implies not merely segregation of groups of human beings that have been in contact with diseases of a fatal character, and of their households, but disinfection as understood by the modern sanitarian. Indeed, certain of the methods of purification of articles would commend themselves to bacteriologists of the day. Careful distinction of their physical state is made; certain are to be purified by dry heat, for example, defiled earthen and metal pots; others by the use of alkalies or acids, others by the use of hot water; others by planing, by disuse and lapse of time, and burial

for a definite period. In regulating the admissions to "Sraddhas," diseased persons, or those undergoing segregation on account of impurity, are excluded. Indeed, if the translation be correct, it would seem that persons suffering from "consumption" are to be excluded—an advance on the sanitary science of the day that our American cousins have seriously agitated for. As a corollary to these provisions, we find strict rulings against undergoing liability to inoculation of the bare foot by infective human excretions. which at least is one of the suggested methods of the propagation of plague. But, it may be contended there is nothing in rulings as to observances of impurity that will prove that ridding of the body of possibly adhering infective matter as a precautionary measure against infection, and segregation, with reference to incubation, were really aimed at. This is a contention but few will favour, in view of the detailed directions given as to clothing, food, and exclusion from intercourse not only of those in direct contact with the source of impurity, or, as the modern sanitarian would put it, of infection, but of all those who may be reasonably suspected to have been in contact with persons under the ban of suspicion. Indeed, segregation of groups is so strict, that individuals are enjoined to have some distance between them when sleeping. But where I look for my proof is not so much in rules of what should be done as to those which detail what need not be done. Were it not that actual contact with infectious substances, for example, such as conveyed by corpses, was dreaded, and were the elaborate bathing and washing, and segregation that must follow, mere ceremonial details, there could reasonably be no distinction as to their perfection or duration, whether the death of a relation occurred by disease or violence, or whether one month or one year elapsed, or whether the event had occurred in the locality where the family is resident, or in a country which is distant. Yet, the Laws of Manu and the Edicts of Vishnu clearly show that a consideration of all these details strictly determines the duration and nature of the period of segregation. More than this, where there might be room for doubt as to the nature of death, and consequent possible room for incubation, the ten days' period is shortened, but still is not dispensed with; precisely as the modern sanitarian would prescribe in the case of persons "under observation" from an infected locality, for example :—

"He who may hear that (a relative) residing in a distant country has died, before ten (days after his death have elapsed) shall be impure for the remainder of the period of ten (days and) nights only."

Here the segregation is presumably required in view of the probable arrival of a messenger with news of the death, as must have

been the case when the Postal Department was hardly so complete as at present, but if ten days had elapsed, this messenger was not to be dreaded; therefore, the following regulations became feasible :—

"If the ten days have passed, he shall be impure during three (days and) nights; but if a year has elapsed (since the occurrence of the death,) he becomes pure merely by bathing."

But when death had undoubtedly not been due to infection, for example, in battle, or by suicide, no impurity was contracted by the household.

It seems, therefore, to me, in the case of objections that have been expressed in Bombay during the present epidemic of plague, that far more homely influences have caused objection to the principles of segregation and disinfection than those of caste. Provided that by his fellow-caste men, or by public funds, reasonable arrangements for preservation of caste during the segregation have been made, and the natural affection of relations be met by affording them accommodation with the sick persons, it would seem nothing but gross selfishness, and not caste dictates, that impels a patient to attempt to remain in his own home, and thus cause risk of infection not only of his own offspring but of his fellow-citizens. Contemplation of removal from home surroundings is, doubtless, unpleasant both for Europeans and Indians; but it is a necessity which implies but a brief period of inconvenience for the minority, in the interest of the majority. In short, there is no ruling in any religion of the many this earth has known that would justify a man who has the misfortune to be afflicted with an infectious disease, insisting that his convenience must be first thought of—even were it to cost the lives of his neighbours. The inhabitants of the benighted Presidency have, I think, good cause to look askance at the action of the uneducated sections of the Bombay Presidency, who have made the sensible laws of the ancient system of hygiene an excuse for ignoring the dictates of its modern prototype and thus have permitted the spread of plague to an extent that has seriously crippled their own commerce, and brought this fatal disease within striking distance of our doors. Gentlemen, I betray no trust if I say the Plague Regulations framed by Government for this Presidency for the prevention of plague are of a nature that show full confidence in the supposition that the wide diffusion of education which it is our boast this Presidency has secured, would bring about a complete union of all castes and creeds in aid of its strenuous efforts to prevent mortality and destruction of trade; and I venture to prophesy that the confidence displayed by Government,

should we have the misfortune—which God forbid—to be invaded by the disease, will not be found to have been misplaced.

THE PLAGUE IN ANCIENT INDIA.

In this connection, it is interesting to note that in visitations of plague in ancient India, for it must be remembered it is no new disease in this country, the method pursued by the Hindus was in full accord with that approved during the present epidemic by the Government of India. Rapid evacuation of the houses in which infection has occurred, and subsequent segregation of those subject to risk of infection, is, in both, the leading principle. So much room exists for doubting the authenticity of extracts from shastras, that it may well be that the following statement has not been derived, as claimed, from the Bagavathi Purana (which would imply an ancient date), but of some more recent Hindu work. Granting that some doubts may exist, which those of you learned in Sanskrit may yet be able to clear, the extract is, I think, of unusual interest; it is quoted from a Telugu pamphlet, corrected by certain pundits, and edited by Mr. T. Swaminathaiya Garu of Hospet:—

* * * * * *

The goddess said:—

"On the order of Brahma, myself, Indra and other gods will visit the people of various villages. Thus visiting village after village and putting to death all the wicked people, will at last go to Brahma. Intelligent people understanding my approach will always do virtuous actions, will study the shastras, and will ever be very careful. On the moment the rats fall from the roof above, jump about, and die, they will at once leave their houses with their friends and relations, and will go to a plain (Vana). There they will do all rites, will utter Mahamarika mantrams and will recite stotrams.

* * * * * *

"In the forest where there is water convenience they will sit. * * * * They will have the image of the Deity before them, will show Dupam and Dipam, and will perform Puja every day systematically according to the shastras. Homam will be performed on fire with cooked rice mixed with saffron powder ghee, and sacred twigs in the midst of Brahmins, relations, friends and servants.

* * * * * *

"After praying to the goddess with great faith in the above manner, they will sit for meals with their relations, always thinking of the Deity. After some days if crows come and sit on their temporary dwellings, they will start to their original home after performing Kaka Santhi (a ceremony to the crows). They themselves, well adorned, will start

with their family and innumerable Brahmins on an auspicious day and in an auspicious hour. In their homes, Brahmins will be requested to recite Vedas and to perform Santhi homam.

* * * * * *

The recognitition of the dying of rats, as a sign of danger of infection, disposes of any possibility of the disease referred to being other than plague. The term "Mahamari" is used to this day in designating the disease in Gharwal where, as you are doubtless aware, plague has from time immemorial been endemic. This injunction to evacuate the ordinary houses of residence, so completely as to involve removal of "relations, friends, and servants" and to resort to clean ground that has never been lived upon by human beings, and not to return to the infected house till lapse of time and special processes for its purification have rendered it safe, represent literally the whole policy of the various regulations issued by each Local Government, in reference to plague-infected villages. Even the modern modes of disinfection in this disease are strictly in accord with those laid down in the shastras for inanimate objects, namely, for the flooring of houses, "scraping and burning," for disinfection of buildings, free exposure to sun and wind, and for other objects dry heat or "hot water," and chemicals which are "alkalies and acids."

SHASTRAS NOT OPPOSED TO SANITATION.

But, even if there were aught that modern science demanded should be effected in the presence of this public danger, beyond what is thus explicitly sanctioned by rules acknowledged by every good Hindu, I am convinced there is nothing that would justify its obstruction in the name of caste. The Laws of Manu are not those of the Medes and Persians. The possibility of there being times when it would be desirable, in the interest of the individual or of the public, to relax rulings is distinctly provided for. Whilst malevolent criticism is forbidden, friendly interpretation of the tenets of the shastras by "reasoning and inference" is sanctioned; even the possibility of change of these is acknowledged as a result of "custom" differing with the times, as followed by "good and virtuous men." Liberality of thought and action are distinctly encouraged, in the following exhortations to abide by the spirit and not by the letter of the teaching. The Edicts of Vishnu remind the householder that, "(He must avoid) even lawful acts which may give offence to mankind." "A wise man should constantly discharge the paramount duties (called yama) but not always the minor ones" (called niyama). Further, the Laws of Manu require the ascetic to remember that, "Though the fruit of the Kataka tree (the clearing

nut) the water clear, yet the latter does not become limpid in consequence of the mention of the fruit's name." Above all, provision is made for special dispensation in times of public distress, in the following forcible language. Vishnu states :—

"Nor can impurity arise during the installation of the monument of a Deity, nor during a marriage ceremony, if those ceremonies have actually begun; *nor when the whole country is afflicted with a calamity*; *nor in times of great public distress* (such as an epidemic or a famine.)

Manu states :—

"He who, when in danger of losing his life accepts food from any person whatsoever, is no more tainted by sin, than the sky by mud."

"Agegarta who suffered hunger, approached in order to slay (his own) son and was not tainted by sin, since he (only) sought a remedy against famishing."

"Vamadeva, who well knew right and wrong, did not sully himself when tormented (by hunger) he desired to eat the flesh of a dog in order to save his life."

"Bharadvaga, a performer of great austerities, accepted many cows from the carpenter Beibu, when he was starving together with his sons in a lonely forest."

Visvamitra who well knew what is right or wrong, approached, when he was tormented by hunger, (to eat) the haunch of a dog, receiving it from the hands of a Kandala."

If the diminution of trade inducing poverty of the country, and loss of human life can justify the term "public distress" (and, I may say, I do not see how such a conclusion can be reasonably avoided) it seems to me, in the interests of their countrymen, the "men of light and leading" in this Presidency, should anticipate events and forward thereby a policy of liberal thought and action in support of the common weal, by publicly declaring it to be so, after due consultation of "good and virtuous men." Such a declaration might reasonably be applied only to districts actually affected with plague, and be withdrawn the moment a normal condition of health was attained.

## CONCLUSION.

Nor is it solely in the Hindu religion that we find the principal of segregration laid down for adoption. Distinct references to this subject are made in the Bible. In the Koran, the exhortations to cleanliness of the body and clothing are frequent, and the promise of the regard of God for those who keep themselves cleanly, is extended to the believer. Such explicit statements cannot but imply approval of the science of sanitation, which deals with cleanliness of the human being and his

surroundings. Further, the necessity for recognizing segregation is referred to in the order to supply the wants of the leper by passing food to him at the end of a spear. But that removal of inhabitants of towns from infected houses, and from the locality where plague is present, for residence on cleanly sites in camp, had the approval of the ancient leaders of the Mahomedan faith, is clear from the fact that the victorous Abu Obeida put this method into practice during an epidemic of that disease.

If, Gentlemen, in attempting to illustrate the scope there exists for the new or progressive reformer, I have confined myself to current topics that happen to be sanitary, I trust it will not be conceived that it need be limited by endeavours to remove false impressions from the uneducated in reference to the science of Hygiene. On the opposite, I think there are few details in connection with the methods of administration of the country, which affect the welfare of the people, that might not be usefully dealt with, and by removal of misconceptions as to their intentions, or by enabling the uneducated to understand the advantages offered by them, would not result in aiding the contentment and, ultimately, the material prosperity of the people. The progressive reformer must be the pioneer of all movements calculated to enhance the moral and material prosperity of the people, as contrasted with their purely political aspirations. The moment the advance is impeded it is for him to ascertain the true cause—not as gathered from irresponsible chatterers in the rear, but by careful and skilful personal investigation at the head of the column. Once the true causes have been ascertained, let him exert himself for their removal. The labour may be heavy; the progress may at first be slow; but each obstruction thrown down will render the next more readily dealt with. If he will but perserve, in the end, the welcome cheer of a no longer impeded advance will reach him. In that moment, in the midst of demolished misconceptions and idle prejudices, he will reap the reward of the knowledge that he has done well by his fellow-countrymen—and well by the State—that he has lived not for himself but for his country.

## A USEFUL INVENTION.

Writers on Technical Education who have obtained their inspirations among the splendid institutions which to-day represent the requirements of the leading countries in Europe and America, have

given glowing accounts of the lavish expenditure bestowed upon them, and of the brilliant results which already have been observed among the industries they foster. It is so easy for an able and enthusiastic writer to be carried away by the glamour and the possibilities of applied science, that it is no wonder if he confounds the prospects of the Indian artisan with those of other and more advanced countries. Had the system of instruction in applied science, now in vogue in England, been introduced fifty years ago, it would, in all probability, have been scouted as utopian by the British parent, and resisted tooth and nail by the British taxpayer. No well-informed person would venture to say that India to-day is industrially on a level even with the England of fifty years ago. Enormous strides of progress will have to be made in order to reach that position, which after all, is but a station on the road of progress. Methods and appliances which are completely obsolete in England would represent very advanced knowledge in India and would fit the resources and experience of the people much better than many modern appliances of European manufacture, which facilitate certain processes in the hands of those who can afford to use them, while they restrict the work elsewhere by competition.

The introduction of machinery of iron seems to have checked the manufacture of machines of wood, which in all poor and primitive communities have prepared the way for the Iron Age. These appliances have been converted, not by a sudden transition, but slow degrees, until all the timber in them disappeared. It is barely ten years ago since the last of the wooden framed cotton spinning machinery was removed from a cotton mill at Tiflis, the capital of the Caucasus. India has not yet quite reached the Iron Age. In spite of her railways, coal mines, engineers, workshops, and foundries, the wooden plough, the Persian wheel, the *mhote*, and other simple appliances will remain with us still for many generations. They appear all to have remained until the present time without further improvement. The tendency of Technical Education in India at present is to ignore the graduated steps by which people reach the stage of iron appliances. It ignores the wooden loom and the wood framed cotton gin. It uses iron pillars on occasions when wooden posts are cheaper and just as useful. It adopts a European frame of mind and point of view, and this point of view has a very serious effect on the outfit of technical and industrial schools, making it so costly as to stand in the way of their adequate multiplication. In addition to the colleges to be found at some of the chief centres of activity in India, a great number of smaller schools will be required throughout the country where the principles of handicraft may be taught in the vernacular at the

smallest cost and in a manner best calculated to meet the immediate wants of the Indian workman of the illiterate class, which constitutes so large a proportion of the whole. The practical reformer who would make the most of his means in this country must ascertain what it is that the bulk of the Indian artisans need in the greatest degree. It must of course be something that will give prompt results, else the Indian artisan, unless in jail, will have none of it. It must appeal to his sense of gain, and must not demand a kind of study to which he is unaccustomed. It is said of him that he gives his best thoughts to finding excuses for bad workmanship. In this he displays a fairly high class of intelligence which only needs to be directed into more useful outlets.

The most urgent need of this class of workman is the knowledge how to do more and better work with the same expenditure of labour that he now gives to it, or, if possible, with less. This, interpreted, means an extended knowledge of appliances and how to use them. The appliances must of course be things within his reach, things he may make wholly or in part by himself. The best kind of tools for his purpose and means, the best way to sharpen them, make them, and use them.

Wood enters so much into the artisan's outfit already that it is the best material to be used to extend his resources. A century ago it was much more used in the construction of machinery, wheels, and shafting than iron, and to the average Indian artisan with any ingenuity, it is the only material available in districts removed from industrial centres.

We have recently seen in operation two machines constructed almost entirely of wood which, if we may judge from the work they perform, should be of great use in this country. The machines in question are a turning lathe, driven by the foot, and a drilling machine operated by the hand. In construction they are strong, simple, and easily manipulated. Among the many novel points in the lathe is an adjustment of height to suit the stature of boys and men, and a device for cutting screws with a single point. The drilling machine makes holes from one and a half inches to one sixteenth inch; a stop motion regulates the depth; and the spacing of a row of holes can be effected without measurement.

The samples of work shown consisted of plain and ornamental turning, screw-cutting in wood, a sphere turned perfectly true without the use of any gauge, a sample of a window shutter frame and jhilmils, the former being grooved and drilled to gauges and the latter having the round pins formed and the shoulder cut exactly, but without measurement. There were also window sash rails and other examples of joining and cabinet work, These machines on many kinds of work will

double and even treble a workman's capacity besides ensuring a degree of accuracy unknown before. They have been patented by Mr. J. Wallace of Bombay, and are to be seen at the Reay Art Workshops, Bombay School of Art.—*Times of India.*

## REVIEWS OF BOOKS.

### THE ANGLICAN REVIVAL. By the Rev. Dr. Overton.

In this little work of two hundred pages the author has succeeded in placing very lucidly before us the historic development of the great movement which originated in Oxford some sixty years ago. The author possesses a judicial mind and has been able to place the successive phases of the movement before the reader in such a manner that he can form his own judgment.

The impression left upon one after reading the book is that the movement was one of men rather than of principles.

The ecclesiastical world was for nearly thirty years dominated by men of deep intellect and holiness of life. The principles were not new, they were simply buried out of sight till drawn attention to by Keble, who very properly is placed at the head of the movement, although for very good reasons he did not stand forth afterwards as its visible leader. Canon Liddon, in 1879, proposed to write a history of the movement with Pusey as the central figure, but the latter at once said "Keble was the mainspring."

The public history of the revival may be said to have begun with the first Tract issued by Newman in 1833. The keynote of this Tract, as well as of all the rest, was the doctrine of the apostolic succession.

There was at the time a strong feeling that the State was about to "cast off" the Church, and then on what were the clergy to rest their claim to respect and attention? Clearly they must go back to the real ground on which their authority was built.

The Tracts were issued at short intervals for three years, chiefly written by Newman. It was not till 1835 that Pusey actually joined the movement which long afterwards continued to bear his name. He was

responsible for Tracts 67, 68 and 69 which appeared in that year. The subject was Baptismal regeneration. Dr. Overton says of these tracts.—

"The time for short stirring appeals was over; the time for solid, sober, treatises on Divinity had arrived, and Pusey was better qualified for this department of the work than any other member of the group."

Pusey is described as a moderate man, one who had no sympathy with the ritual excesses which long after flourished under his name. He was the only man of the movement for whom the Evangelical School had any attraction. It was Newman's office to stimulate and startle, Pusey's to soothe and conciliate. The writer of this review had the privilege of personal acquaintance with both of them, and can testify how much the movement could owe to the personality of its two leaders. The third stage of the movement coincided with the appearance of the most famous Tracts of the series: Keble's No. 89 explaining and justifying the mystical interpretation of Holy Scripture, and Newman's No. 90 pointing out how the subscription to the Thirty-nine Articles, then required of every Oxonian, was not inconsistent with the doctrines which by this time had come to be identified with the Tracts. No. 90 had a very rough time of it with the Dons. Every College buttery hatch was placarded with official repudiations, and Newman was inhibited from occupying the University pulpit, and retired to his country living at Littlemore. Newman was quite unprepared for the storm. At the request of his Bishop he discontinued the publication of the Tracts.

Dr. Pusey next got into trouble and was "delated" for heresy under the statute *De Concionibus*, with the result that he was inhibited from preaching for two years.

In 1845 the revival ceased to be an Oxford movement, but it became a national one. Newman's secession was responsible for this transference. The leadership lay between Keble and Pusey, but the former had for some years been an influence rather than a personality, and from 1845 to 1882, that is during a whole generation, Pusey was the accepted leader of what had come to be a strong and growing party. Up to 1845 the movement had been academic, but it now rapidly expanded.

The author devotes an interesting chapter to Pusey's relations with Hook in reference to St. Saviour's Church at Leeds which may be information to a good many people, shedding a new light on the characters of both. Chapter IX will be of interest to the reader who is more interested in present-day life and visible results, than in history and

theories. The relation of the movement to the public worship of the Church is very happily treated of.

The final chapter is a summary in which the author describes what he considers to be the causes of the success of the movement. These, of course, are personal opinions, and in the view of a good many people it is begging the question to call it a success. Still most High Churchmen will, we fancy, agree with Dr. Overton. He calls it a "revival of the poetry of religion." He appeals, and very properly, to the saintliness of the leaders, and last of all the "movement taught men that the Church could give them something worth fighting for."

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EUCLID, Books I and II. Edited for the use of Schools by Charles Smith, M.A., Master of Sidney Sussex College, Cambridge, and Sophie Bryant, D.Sc., Head Mistress of the North London Collegiate School for Girls.

The names of the well-known Editors are sufficient guarantee that this little book is both scholarly and accurate; the name of Macmillan ensures that everything that printer and engraver can do, has been done well. The Notes contain all that is required by the junior student, and are not overloaded with superfluous matter. The usual alternative proofs are given of the more cumbrous propositions in Book II, while the purely geometrical line of Euclid is wisely maintained. A small selection of supplementary propositions is also added.

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AN INTRODUCTION TO EUCLID, including Euclid I, 1-26.
By H. Deighton, M.A., and O. Emtage, B.A.

This is an attempt to provide a "step by step" Euclid, or rather we might say, "crawl by crawl." Looking at it, the practical question arises, given a pupil of capacity so mean as to require instruction from a book of this nature, is it worth while starting him on the study of Euclid at all? Yet the book is not so easy as it seems. The very first paragraph presents various conundrums. Thus: "of how may dimensions is a cricket-ball?" is asked, the only possible answer from the data given being "of one dimension," for clearly the size depends only on one thing, the radius. But perhaps in Barbadoes, boys are accustomed to talk of the length, breadth, and depth of a cricket-ball.

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GEOMETRY FOR BEGINNERS. By Geo. M. Minchin, M.A., F.R.S.

This is an introduction to Geometry and not to Euclid, though naturally a student who has pursued the course here laid down will, on coming to Euclid, find a smoother path and many familiar scenes. The

theory of the author is that "we should begin with *constructive*, or manual work, and see that a good deal of it is done before anything approaching to *syllogistic reasoning* is attempted." This process is consistently carried out, the result being a simple and lucid conspectus of the more familiar properties of angles, triangles, parallels, parallelograms and areas generally. The method necessarily includes an elementary course of Geometrical Drawing and to this due attention is given. Professor Minchin is also careful "to test his results by common sense." Unfortunately, a book of this kind does not seem to fit into any part of our scholastic curriculum, and teachers would for the most part think time spent on it as time thrown away.

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THE FOUNDATIONS OF SCIENTIFIC AGRICULTURE. By Samual Cooke, M.A., A.M.I.C.E., F.I.C., F.G.S., Cor. M.R.H.S., Principal and Professor of Chemistry and Geology, College of Science, Poona. London: *Longmans, Green, and Co.*

The author, whose right to be called a man of letters none will dispute, claims that his book is "a concise Manual containing an outline of the Foundational Principles of Scientific Agriculture," and states that it is written chiefly for the purpose of providing the University and Educational Department with a suitable text-book for schools and colleges, and thus to supply a want which is felt, not in the Bombay Presidency alone, but everywhere in India and the Colonies. It was originally composed, he goes on to say, in the guise of a short course of lectures, delivered for a period of over fifteen years at the Poona College of Science. A cursory inspection of the book confirms the author's account of its origin, for its scrappy style and the disjointed and unsystematic fashion in which the information it contains is thrown together, we cannot call it arranged, prove it to be little more than rough lecture notes put into type. Perhaps, also, the same statement incidentally throws some light on the reason why the present system of agricultural education in Western India is sometimes sneered at, a circumstance to which the author regretfully alludes in his preface.

As the author makes no secret of his opinion that these lecture notes, which he publishes under so pretentious a title, besides being a valuable contribution to scientific literature, supply, not a mere local, but an almost world-wide want, it is well that we should examine the book with some minuteness, in order to ascertain, if possible, how far the author's estimate of his work is justified, and what value it possesses both from the scientific and educational point of view. The enormous importance of the subject with which the book deals, as well as the author's posi-

tion as principal of the only institution in India which, so far as we know, designates itself a College of Science, are additional reasons for devoting to it more than the usual share of attention.

In the introductory chapter the author insists—for which no one will blame him—upon the paramount importance of the agricultural industry in India, and the necessity of improving the methods it employs, if the country is to continue to produce sufficient food for its ever-growing population. He draws a gloomy picture of what will happen unless this improvement takes place. Industries will cease, he tells us, and man may have to devour man; in support of which prognostication he introduces a quotation from so recent an authority as Ovid. We are somewhat reassured, however, on learning, a little further on, that "food-stuffs are still as cheap in India as in any other country on the face of the earth." But on the very next page our feelings are again lacerated by the information that "there are at present in India about forty millions of wandering tribes who are compelled to be satisfied with half a good meal as their daily portion." Forty millions of tribes must represent a tremendous lot of people, and only half a good meal a day among so vast a multitude is simply heartrending. The perplexity into which we are plunged by this startling news is increased rather than allayed, by learning that it is in some mysterious way connected with the fact that the cotton mills in Bombay were practically idle while China was engaged in war with Japan. Then follows a good deal of criticism, of a description more or less unfavourable, of the character and customs of the Indian people. Among the things which the author denounces is the practice of investing money in ornaments and marriage ceremonies, "while their crops suffer from want of manure." Few people, we imagine, would call the application of money to the latter purpose an investment. The next complaint is of the fecundity of the people, which is attributed to the circumstance that the Hindu ryot is "bound by religious rites to consider the foundation of a family as the first law of nature." The procreation of children has been regarded from the days of Adam as a religious duty or a religious obligation, but we did not know that, even among the Hindus, there were religious rites connected with the act. Then we are told that "a native of India generally keeps his information to himself, intending to benefit himself only thereby." This is an instance, the author assures us, of Newton's law that action and reaction are equal and opposite. Selfishness, if it be selfishness, of this sort, is not, we conjecture confined to the people of India. Let the reader turn to the end of the book, where he will find an appendix entitled "An Interesting Agricultural Experiment,"

which gives an account of a process for utilizing city sweepings by converting them into artificial manure. "The invention" it is stated, "is the idea of Professor S. Cooke, of the College of Science, Poona, who has secured a patent for his system." Are we to assume that, in obtaining this patent, the author's sole object was to benefit others! The ignorance of the cultivating classes is next enlarged upon. Improvements in agricultural methods are "resisted with a conservatism worthy of an obstructive Home Ruler, which can only be attributed to the lack of elementary education." We have heard Home Rulers called obstructive often enough, and possibly they deserve the title, but this is the first occasion on which we have seen conservatism assigned as the cause of their obstructiveness. Clearly, the author's politics are a little mixed, but, as he seems to regard Conservatism and Home Rule with equal disfavour, he would probably call himself a Liberal Unionist.

What has all this rigmarole of bad English and worse logic got to do with the foundations of scientific agriculture, it may well be asked; and we must candidly admit that, in our opinion, it has no connection whatever with the subject. We refer to the author's introductory chapter at such length merely to show how he approaches the subject of scientific agriculture, and so enable the reader to acquire an idea of how much and what sort of science there will be displayed in dealing with it. The value of a work may often be judged from its prologue.

The foundations of scientific agriculture, it should be remembered, are older than this book. They were laid more than half a century ago, broad and firm, by Justus von Liebig, whose name will be handed down to all future generations as the father of agricultural chemistry. Chemistry, to use his own words, is the foundation of scientific agriculture, and we cannot hope to give a scientific form or basis to this important art without a knowledge of the constituents of the soil and of the substances which constitute the food of plants. And, again, he says: Agriculture is both a science and an art. The knowledge of all the conditions of the life of vegetables, the origin of their elements, and the sources of their nourishment form its scientific basis. Now these words are no less true now than when they were written, and the whole of the advance in scientific agriculture which has been made during the last fifty years may be attributed to a recognition of their truth. Of this fact the author is not ignorant, and in his book, as in every other book which has ever been written on the principles of agriculture, there is an attempt to convey that chemical knowledge relating to the soil, the atmosphere, and living forms, which Liebig declared to be the scientific basis of the cultivator's art. In this attempt he has signally failed, like too

many of those who have preceded him in it. It is, indeed, our opinion that no person, however gifted, can succeed in the task which the author has undertaken, if he proceed on the author's lines; for, in the very nature of things, it is as impossible to explain particular applications of general principles to persons who do not understand those principles as it is to instil the principles themselves by showing how they are applied in certain special and peculiar cases. In other words, no person can understand the applications of chemistry to agriculture who has not studied and grasped the principles of chemical science; while, on the other hand, no person can learn the principles of chemistry by merely reading how certain of them are applied to agriculture. Put in a still more concrete form, the statement amounts to this: No person who has not studied chemistry can understand agricultural chemistry, and no person can learn chemistry by studying agricultural chemistry. Ignorance of this fundamental fact is the rock on which the author splits, with the result that he has produced a book which, paradoxical as it may appear, no one who has not some knowledge of chemistry can understand, and from which no one who has that knowledge, will be able learn anything of the least use. And it is not alone the plan of the book which is faulty, but the execution in every detail. Not only, as already remarked, is the information it contains disjointed and unsystematic to a positively painful degree, not only are much of its contents meaningless and useless, not only is much which ought to be included in the most elementary treatise on scientific agriculture omitted, but a great deal of what is included is inaccurate, not to say, absolutely incorrect. In perusing the book we have marked, not scores, but hundreds, of defects coming under one or other of these categories, many of them blunders of the most elementary character. These blemishes are, in fact, so numerous that we find it impossible to do justice to them in the space at our disposal, we are therefore reluctantly compelled, for the present at least, to leave them severely alone, reserving their consideration for a future occasion, should the necessity arise.

We may, however, make a passing reference to the last two chapters of the book. One of them consists of 129 questions, which the author says are "Samples of the Bombay University School Final and other Examinations in Agriculture," and to which he gives the inappropriate, some might call it the nonsensical, name, "Gymnasium for Students." The questions are of very unequal merit, some are good, some bad, and others indifferent. The chief objection we have to urge against them, however, is that they exhibit the same absence of order or arrangement which pervades the rest of the book, to which, probably, may be

attributed the circumstance that the same questions occur several times over in slightly different words. We shall give one example only :—11. Indicate briefly the agencies at work in the production of soils. 40. Trace the history of soil formation through all its stages. 59. By what agencies are soils formed ? 103. State what you know regarding the formation of soils and the difference between sedentary and transported soils, and distinguish between drift, alluvial, and colluvial varieties. 109. Explain the modes of action of all the known agencies engaged in the production of soils from rocks. These questions are, to all intents and purposes, identical. The other chapter is a glossary of terms "for the benefit of Indian readers," and is at one and the same time redundant and defective, as well as being inaccurate. It is redundant because it includes many words which a person having only a moderate knowledge of English is certain to be familiar with, as, for instance, capital, composition, gaseous, function, medium, section, shoot, transplant, transition, and such like. It is defective through omitting many words used in the text which the average Indian student is not likely to be acquainted with, such as mammilated, fossilized, pyritous, endosmotic, irridescent (*sic*), and hygroscopicity, (which, now that it has been unearthed by the author, is likely to become a formidable rival to that blessed word Mesopotamia). Both *pari passu* and *en passant* are found, as well as *apropos*(*sic*), whereas *raison d'être* is absent. The numerous inaccuracies are, however, the worst blemish. *Apparatus* is defined as any complex instrument or appliance, mechanical or chemical, used for a specific action or operation. On the next page, a bottle is called an apparatus. *Diffusion* is said to be the act or state of becoming uniformly mixed up. *Inorganic*, not endowed with the organs of life ; not produced by vital action : *Organic*, produced by or relating to living organs. *Crystal*, a mineral bounded by symmetrical faces, meeting each other at definite angles. Slipshod and inaccurate definitions like the above are the rule, not the exception. In the text the term *thermal unit* is used, and most unjustifiably used, to denote the product of the number of days a crop is growing into the mean temperature during the growing period, whereas in the glossary it is defined as "the amount of heat necessary to raise a stated quantity of water to a given temperature," which definition, though by no means correct, is much nearer the truth. *Argon*, we are told, is a recently discovered element, intimately associated with the nitrogen of the air ; and nitrogen contains its argon as oxygen does its ozone. To be able to condense so much that is untrue about argon into so few words indicates a positive genius for mis-statement, and coming, as it does, from a Professor of Chemistry, gives one a severe shock. But we have no desire to be unduly severe on the book : we merely feel bound to

say that if the author had consulted a fairly good dictionary in compiling this glossary he might easily have avoided fully one-half of the errors it contains.

We have only one more remark to make concerning the book, and it is this. The author obtrudes himself, we had almost said, advertises himself, far more than a fastidious taste would consider permissible. The frontispiece is a picture of a geological picnic-party from the Poona College of Science, which serves no conceivable purpose except that of making the reader acquainted with the interesting personality of the author, his students, and his belted chuprassies; while the last illustration the book contains introduces the author's cow—a fine animal warranted to give 28lbs. (*sic*) of milk daily. The book contains nothing whatever about cattle, and apparently, the only motive for inserting this cow's photograph is to make it known that she was "bred and reared by the Author." Elsewhere the reader is advised to improve his knowledge by consulting Cooke's First Principles of Chemistry, 6th Edition, also Cooke's Students' Practical Chemistry. Self-advertisement (we can really find no other name for it) of this description may be profitable, we doubt whether, in a book claiming to be scientific, it is dignified or becoming. But the book goes still further in this direction. The appendix, to which we have already had occasion to allude, is merely a puff of Professor Cooke's patent system for converting town refuse into artificial manure, contributed by an anonymous correspondent (whose identity the reader is not unlikely to suspect), to the *Times of India* more than a dozen years ago. In our opinion, the process is one which has as much chance of becoming commercially profitable as the extraction of sunbeams from cucumbers. The writer of the puff, however, thinks differently, and anticipates large profits for a company working the patent. The knowledge he possesses of the subject and the value of his opinion may be judged from the following extract:—"As a proof of the commercial success of an undertaking of this kind, it is known that the sweepings of Manchester, Birmingham, and other towns in England are readily disposed of at prices varying from £4 to £6 a ton. Chemical manure is exported in enormous quantities from Liverpool." The first part of this statement is simple nonsense; and if by the second part it is intended to suggest that the chemical manure which is exported from Liverpool or any other port, is manufactured from town sweepings, we give it an unqualified contradiction. It is difficult to understand how any intelligent person can propagate rubbish of this sort unless with interested motives. But the author, not content with aspiring to be regarded as an inventive genius, positively

makes a bid, on the strength of his precious patent, for the gratitude of humanity at large. He does it by printing a letter, addressed to himself more than twelve years ago, by the Sanitary Commissioner to the Bombay Government, in which that official asserts his opinion that manure similar to the sample sent "ought to be a success in an economical respect, in which case your name will descend to posterity as that of a public benefactor." If this is not self-laudation it resembles it so closely as to be indistinguishable from the genuine article, and if it proves nothing else, it, at least, shows that the author either failed to learn or has entirely forgotten one of childhood's most important lessons—the lesson that "Self-praise is no recommendation."

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A MONK OF FIFE. BY ANDREW LANG. (New Edition).
*Longmans, Green, & Co.s'* Silver Library.

Mr. Andrew Lang's versatility finds ample scope in the framework and texture of the novel before us. He is a Scotchman with the romantic lore of his country at his finger-ends; his reading has lain largely among the legendary literature, both Scots and French, which enshrines the early struggles of the two peoples against the hated English; he has a penchant for the eerie and uncanny and has done something in mythology and psychic research; he has a turn, and more than a turn, as his classic rendering of the Odyssey bears witness, for putting into English, cognate with the spirit of the original, the tales of old world heroes and warlike deeds. Moreover, he has made his home in Fife and in that particularly ecclesiastic corner of it overshadowed by the bowers of S. Rule. We have even seen him play golf, and he could not live where he does without being impressed with the paramount importance of at least a theoretical knowledge of the intricacies of the game. Lastly, he is set down by some as the most 'casual' of mortals, and possessed of a hardihood that turns his back on his reader and bids him take him or leave him—leave him for choice. These manifold qualities and idiosyncrasies find, each in turn, their illustration in this novel, and together compose its charm. What, for instance, could better exemplify the two last points referred to than his making, if you please, a monk's account of "what befell in the realm of France in the years of our redemption MCCCCXXIX—XXXI" turn on a quarrel over an alleged intentional 'Stimie' laid by an opponent at the High Hole on St. Andrew's Links, probably ages before a 'Stimie' was heard of, or the said hole cleared of its primeval whins! Once started on his career, however, the hero, Norman Leslie of Pitcullo in Fife, who like many Scots of the time (and

long after), in difficulties, fled for fame and fortune to France, does not halt by the way for lack of adventures either in love or war.

The tale takes the form of a translation from a French chronicle of the hero, now a bowed old monk in the Abbey of Plescarden, near Elgin, of the part played by him in his gay and reckless youth among the Scots cadets in the train of Joan of Arc during the years that saw her rise and fall in her desperate attempt to oust the English invaders. Its humour lies in the quaint only half-hearted headshakings of the old monastic, and the moralisings largely formal, he makes, now that his blood is tame, on the follies and passions that possessed him in hot youth, and anon in the energy which, awakened by remembered scenes of strife, bursts through the quiet of his cell and lives again in picturing love's mischances and the stir of life's young day. The chronicle too, unlike the tone of current fiction is pitched in a sombre key as befits the record of a lost cause. This prevailing note is early struck, in Norman's encounter with Noiroufle the Cordelier, "called Brother Thomas in Religion," a master in devilishness and his evil genius throughout. Nothing could well surpass the diabolic fiendishness of this villain when he comes to 'absolve' Norman who had saved his life the day before, but now lies in his power, helpless from wounds. But the sombre colouring of the story, intensified by the fact that Noiroufle never gets his just deserts, and the long record of bloody fights and unavailing heroism are lightened by the tale of Norman's love for Elliott, the fortunes of which vary with the vicissitudes of the general story. Love indeed conquers in the end, but even here the fruition is short, for Elliott, his bride, dies in child-bed after a year, and Norman retires to his cell on Moray Firth to seek in sanctuary a respite from life's disappointments.

It would convey a wrong impression, however, if we omitted to state that in obedience to the canon of historical novel-writing Norman's fortunes form as it were but an episode in the larger and sterner drama enacted by the real personages Joan, the Dauphin and the Duke of Burgundy. Nor does it detract from this canon to state that the subservience of the tale to historical record is purely formal. Mr. Lang is writing a novel and he does not forget it. The fate of historical characters is known beforehand, and the interest of such a tale depends therefore on the fiction and not on the facts. Still the life and character of The Maid are enshrouded in so much legend and myth, a fact which probably chiefly attracted Mr. Lang to the subject, and her career is so little known to Englishmen, that the author has cunningly contrived to secure the suffrages both of these seeking information under the plea-

sant guise of a story and of fiction readers pure and simple. The quaint style, the very illustrations and general get-up of the book sustain the illusion, though here and there slips are observable. Surely no one writing in the fifteenth century would have spoken of the North 'Street' of S. Andrews. It was known as the 'Norgate' or 'North-gate' till an almost recent date. Few recent books more well repay analysis of the writer's art in telling a story depending for its interest on a balanced interaction of love and hate; hope and misgiving; ambition, and the remorseless countering of fate.

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THE MOON: By Richard A. Proctor. *Messrs. Longmans & Co.* 1898.

This is a new edition, re-issued in the Silver Library, of Proctor's well-known treatise on the Moon, her motions, aspect, scenery and physical conditions; and it is needless to say that it is a most interesting work on a very fascinating subject. The account of the moon's motions and her changes of aspect, &c., which occupies the first half of the work, is not above the comprehension of the general reader; and though mathematical details are avoided and the aim of the author has been to treat the subject in a popular manner, yet the information conveyed therein loses nothing of the exactness of science. As to get at the inner kernel we have first to crack the outer shell, so the labour, if any, bestowed to master this part of the work is amply recompensed as we proceed further on and commence the most delightful study of the moon's surface and lunar celestial phenomena. To say the least of it, the sketch as given here of the aspect and condition of the moon's surface is as entertaining as any fairy tale, while it is as true as observation and measurement can possibly make it. Indeed, no branch of observational astronomy offers so many attractions and at the same time demands so little in the shape of apparatus as the study of the moon's surface; and the author is earnest in recommending every student of astronomy to survey the lunar details as completely and systematically as his leisure and his instrumental means will permit. In the course of the chapter dealing with the nature of the celestial phenomena as presented to an observer on the moon, the author takes upon himself to describe some of the chief events of a lunar month. For this purpose he stations his supposed observer upon a summit of the lunar "Appenines," and selects that lunar month which commenced on the evening of November 1, 1872; and this naturally gives him an opportunity to include in his description the phenomena of an eclipse of the sun by the earth (which happened a few days afterwards). Then we have a most magnificent description of the inky blackness

of the lunar sky, the myriads of stars unseen by the inhabitants of the earth, the Earth herself suspended as a vast orb of light in the heavens and remaining unchanged in position though constantly changing in aspect and passing through all her "phases," the gorgeous scene presented when the sun himself had risen, and finally his wondrous eclipse as his orb passed behind the Earth. Truly to a lover of selenography Proctor's work on the moon is as indispensable as Nasmyth's or Neison's. The map of the moon accompanying the work under notice is reduced from the excellent one of Mr. Webb, which itself is reduced from the large chart by MM. Beer and Mädler; and every object included in the map had been carefully examined for his own satisfaction by Mr. Proctor himself with a $2\frac{1}{4}$ inch telescope.

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*Note.*—We regret that by an oversight several misprints appeared last month in the review of Mr. Raghavachari's *Elements of Physics and Chemistry*.

*e.g.* p. 182. line 8, for *forces* read *force*.
p. 183. line 2, for *submit* read *entrust*.
" line 30, for *elementary* read *chemistry*.
" line 33, for *is* read *has*.

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## CORRESPONDENCE.

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To the Editors,

"The Indian Journal of Education,"

Madras.

### A REPLY.

Gentlemen,

The review of my book "Elements of Physics and Chemistry for the Fourth Form," which appeared in the March number of your Journal is very unfair and unjust. It betrays a want of that calm and dispassionate judgment which is the indispensable qualification of a reviewer for a literary journal. It contains many hasty conclusions and some glaring misrepresentations. The book is intended for the use of beginners and, consequently, in introducing the subjects treated in the book, only general principles and rules have been stated, details and exceptions being left to be learnt later on. In Indian schools, experiments are never performed by the pupil, but only by the teacher. The book reviewed does not claim to contain the results of any original researches

made by its author, but only aims at placing some of the elementary principles of Physics and Chemistry before the young student in a readable form. These circumstances do not seem to have been sufficiently realised by the reviewer. The sole object of the review seems to have been to cry down the Madras graduate and the local artist. Judging from the strain of the language, the reviewer seems to be one who expects to be looked upon as an authority on the subject of the book. We may, therefore, expect him to be infallible while speaking on such comparatively elementary matters as are treated of in the book reviewed. Let me now examine how many of his statements are real.

1. "The world we live in is called nature." Here is Sir Henry Roscoe on the same subject (Primer of Chemistry, opening page)—"It is in *nature or in the visible world around us*, etc." I ask the reviewer if he thinks Professor Roscoe also at fault when he says nature and the visible world around us mean the same thing.

2. "Science means an accurate knowledge of the objects of nature." It is true this definition is not quite comphensive and all-embracing. But as pupils of the Fourth Form have to do only with Physics and Chemistry, two departments of science which treat of the phenomena of nature and as with them the word science is associated with Physics and Chemistry, the above definition is very much to the point. A more scientific definition of the word will be unintelligible to young minds.

3. "The author never seems to realise that no accurate knowledge of any kind can be acquired except by accurate thinking or conveyed except by accurate language." I do not quite see the necessity for telling the above to beginners. It will be too much of a digression. Here is Sir Henry Roscoe again:—"And it is either by observation or by experiment that we learn all we know about what goes on around us" (Chemistry Primer, opening page). Professor Roscoe does not speak of accurate thinking and accurate language as a means to knowledge. Has Sir Henry Roscoe yet to learn the real meaning of the word science?

4. "If you want to make a body at rest move, you have to exert a little, you have to take the body in your hand and throw it forward or backward. In so doing, you have to spend a little of your strength. This strength which you have to spend before you can put the body in motion is called force." The teacher generally takes an object before him on the table, moves it and tells the boys that in so doing, he had to spend a something called force. Such a statement will not imply that that is the only way of applying force. The beginner's knowledge is to increase little by little and starting with such a simple case of the application of force, he would gradually come to know in what innu-

merable other ways force can act. From the circumstances, it is plain that a body that can be so handled is meant.

5. "A clock (which he says is an instrument for shewing time)." It is not an error to speak of the clock as an instrument for shewing time. I refer the reviewer to Webster's Dictionary where the word clock is said to mean "an instrument or machine for measuring time."

6. "The motion of the pendulum is communicated to a metallic rod with which is connected a peculiarly-shaped metal with two projections. There is a wheel placed between these two projections. When the pendulum moves, this wheel also moves, producing the ticks you hear." This passage is found fault with for want of lucidity. With a figure on the blackboard, a teacher can make it sufficiently clear. Here is Professor Balfour Stewart describing the same in his lessons in *Elementary Physics*—"This pendulum in its oscillations moves backwards and forwards an escapement C, terminated by two pallets which act upon the teeth of the escapement wheel, so that at each oscillation, one tooth is allowed to escape and thus the wheel moves round one tooth at a time" (p. 57). Let the reviewer compare the two descriptions as to their lucidity.

7. "The 80 degrees of Reaumer's (*sic*) thermometer correspond with the 212 of Fahrenheit's." Here is a gross misrepresentation. The book says:—"There are two other thermometers, called Fahrenheit's and Reaumer's thermometers. In the former of these there are 212 degrees, whereas in the latter there are only 80 degrees." How on earth could this mean that 80° Reaumer correspond to 212° Fahrenheit?

8. "That all substances expand on heating and contract on cooling, and can be changed from the solid to the liquid or from the liquid to the gaseous state by heating them." This is simply a statement of the general rule. I think boys will, in spite of the reviewer, certainly remember that every rule has an exception and wait to know of the exceptions to the above, till their knowledge of science increases. Here is what appears in Atkinson's translation of Ganot's Physics, p. 239 (Ninth Edition)—"*All bodies* expand by the action of heat." Here is what Mr. J. Cook, M.A., says in his Physics, New Edition, p. 108—"By adding more and more heat to a body, it passes from the solid to the liquid and then from the liquid to the gaseous condition; and conversely, by sufficient cold—that is, withdrawal of heat—we may cause a gas to become liquid and a liquid to become solid." What difference does it make if the same statement appears in my book?

9. "That a magnetic needle "suspended on a point" points exactly north and south." I do not comprehend the inaccuracy here. If it

is in the word 'suspended,' I refer the reviewer to page 710 of Ganot's Physics, line 30, where the word is used in the same sense. If it is in the words 'points exactly north and south,' here is Mr. Cook again, p. 159.—"Whenever these needles are hung up, they come to rest in the same north and south line." Why does not Mr. Cook say approximately north and south?

10. As regards the remarks about the local artist, I shall say only this much, that it will be hard days for the local artist, if all our drawings and woodcuts should be got from elsewhere.

11. The remarks about throwing a stone and observing its motion are only a matter of opinion. There is no reason why boys in such a case should cultivate their imagination more than their powers of observation.

12. The remarks about the making of sodium and about phosphorus are utterly frivolous, in the face of the fact that all such experiments are performed by the teacher and never by the pupil, at any rate in this country. This is how the subject is introduced in the book—"Let us experimentally ascertain the composition again. Exp. 14. Take a basin with some water in it. . . . . ." Does this not clearly show that the teacher performs the experiment before the boys? Here is Professor Roscoe again;—"Here I have a bell jar. . . . . . . . . . . . . burn your fingers badly." How is it that the Professor does not give the necessary directions about cutting phosphorus, ect., under exactly similar circumstances?

13. Heating copper oxide is not described as a work of preparing oxygen, but only as an example of decomposition. The book says nothing of a glass tube or a spirit lamp, the details being evidently left to the teacher.

14. There is nothing said in the book of evaporating the solutions of soda and copper sulphate in connection with crystallization. Here is what the book says:—"By dissolving 1 oz. of soda in ½ oz. of water; or a solution of copper sulphate, by dissolving 1 oz. of copper sulphate in 1 oz. of hot water and allow these solutions to stand for some time. On carefully examining the vessels containing these solutions, after some time, we notice particles of some substances in them." This is one more instance of the reviewer's misrepresentation.

15. "Insoluble substances float in water." 'Float' simply means 'are suspended.'

16. "When a chemical compound is formed, heat and light are produced." I refer the reviewer to page 65 of the book where it is said, "whenever chemical union goes on, heat is produced and sometimes light

also is produced." And say that the above will be understood in the spirit of the statement on p. 65.

17. "And with the help of our tongues and noses we may see that oxygen and hydrogen have neither taste nor smell." Here, 'see' simply means, 'find out' and it is a very common use of the word.

The above explanations will speak for themselves. They cannot fail to show how far the reviewer of the book has been actuated by the feeling with which he credits himself in his review of the book. Nothing would have been more welcome to me than genuine criticism based on unmistakable facts. In this respect, the review is an utter disappointment and it only shows that even literary men cannot rise above their petty prejudices on matters of this kind. Criticism has descended to a despicable effusion of language of a very offensive and undignified nature, which one, actuated by motives of fairness and justice, would by no means think of giving expression to, even if the book reviewed merited violent condemnation, and I leave it to readers of the Journal to judge how much of the strong language used in the review is really deserved by the book and its author, in the face of the above explanation.

P. S. RAGHAVACHARI.

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## COLLEGE CORRESPONDENCE.

### WARDLAW COLLEGE SPORTS.

On Saturday, the 19th instant, the Anniversary of the Athletic Union was celebrated. There was a goodly gathering in the College compound to witness the sports in which the students of the College and pupils of the School took part. There were running race, a sack race, walking on stilts, high jump, long jump, putting the shot, throwing the cricket ball, tug-of-war, &c. The students vied with each other for honorable places in the prize-list, and some of them acquitted themselves creditably. The youngsters took a great deal of delight in the sack race and the blindman's buff.

The games began at a quarter to five, and after the winners had been determined, Mr. B. Rama Rau, the Secretary of the Athletic Union, read the report, of which the following is an abstract:—

The Athletic Union is composed of the Masters of the College who are Secretaries of the Tennis, Foot-ball, Cricket and Badminton Clubs. The Principal of the College is the President of the Union and each

Club is under the control and management of one of the College staff. "All business relating to the purchase of materials, the levy and collection of subscriptions due to the Clubs, is transacted at the Meeting of the Union, which is held every Tuesday. All ordinary expenditure, such as the purchase of tennis and cricket balls is met by the Clubs themselves. Towards the purchase of the more costly materials, such as bats or rackets, a grant is given from College funds. The Athletic Union is a unique institution ushered into existence by the Principal, and our best thanks are therefore due to him for thus safe-guarding the interests of the various Clubs affiliated to it. This Union has, under his fostering care, reached the second year of its existence. Within these two years a considerable advance has been made and a guarantee given as to its future development. This Union began with only three members on its rolls. Two more were added last year. The income of the Tennis Club rose from 21 to 47, under the efficient management of Mr. S. Narayanasami Aiyar, the second Assistant of the College, and the total income of the Union from Rs. 34 to 53. The Union has been therefore enabled to purchase a stone-roller at a cost of Rs. 20, for the use of the different Clubs. We have had some encouragement given us by the public in our endeavours to further the cause of physical education. A few gifts have been received from some of the leading gentlemen of the town and to them our grateful thanks are due.

I cannot bring this report to a close without once again expressing my deep-felt gratitude to Mr. J. P. Cotelingam, the President, for his interest in the welfare of the Union. A great deal more may be done towards the improvement of the College Clubs, if the public will only lend us a little support and take an interest in seeing their children grow more muscular and strong."

The Rev. Herbert Lewis then spoke a few words of encouragement to the students and congratulated the Union on its success. The successful competitors had the pleasure of receiving their prizes from Mrs. H. F. W. Lester. The various gifts were contributed by the leading officials of the town, the Principal and some of the Masters of the College and by Messrs. Lester and Lewis. On behalf of the Union Mr. J. P. Cotelingam proposed a vote of thanks to Mrs. Lester and Mr. Lewis, and after the distribution of flowers the proceedings of the day were brought to a close.

# LITERARY NOTES.

Mr. W. F. Rae makes out from documentary evidence left behind by Sir Philip Francis that he could not have been Junius. In a letter published by Junius in 1775, he states he was a by-stander in the House of Lords on the day it was written and reports a judgment delivered by the Lord Chancellor. In 1775 Francis was in Calcutta. Taylor's argument for identifying Junius with Francis is based on the supposition that Francis was dismissed from the War Office and that Chamier was his successful rival. Now it turns out that the appointment that Chamier held was offered first to Francis and declined by him and that far from being Chamier's rival he was his friend. Junius' objects of attack, Welbore Ellis, Barrington and Bradshaw were men with whom Francis was on the best of terms. Of course Francis could not disabuse the public of the misconception caused by Taylor's 'Junius Identified' because of a domestic difficulty. His young wife whom he married when 75 years old worshipped him under the delusion he had written the Junius Letters, and he had not the heart and courage to reject her adoration.

* * *

Alphonse Daudet has been called by some the French Dickens. Just as the real Dickens is the author of Pickwick and not the tear-provoking creator of Nell, so the real Daudet is the creator of Tartarin of Tarascon and not the realistic delineator of Parisian manners as in the *Nabob* and later tales of his. So thinks Mrs. Emily Crawford as appears from her notice of Alphonse Daudet in the February number of the *Contemporary Review*. English readers will find in Macmillan's Colonial Library good translations of Daudet's works.

* * *

A critic in the *Edinburgh Review* writing on Mr. Kipling's works says in effect as follows :—Notwithstanding the amazing vogue and popularity that Mr. Kipling has secured with the English reading public, the question has often occurred to us how much of the literary output will take rank as permanent literature. No doubt as 'photographic' novels describing the manners obtaining in certain phases of society they are sure to be read by our reading men, and they may come to have historic value as the novels of Anthony Trollope. But as no work which has not some perfection of literary form and which does not deal with the ever-enduring interests of humanity can take rank as permanent literary creations, it is to be feared that much of Mr. Kipling's performances will cease to attract readers as years roll on. But the two

Jungle Books and some few poems cannot be ranked among works of merely ephemeral interest.

* * *

'Industrial Democracy' by Sidney and Beatrice Webb and published by Longmans and Co., should interest all students of history and political economy. Mrs. Sidney Webb with her intimate knowledge of trade-union work may be safely guessed to be responsible for the technical portion, while her husband may be credited with the pure political economy portion of the work. Now that strikes and locks-out are coming to be a little too frequent, the problems discussed in the book will be found to have great interest for the reading public, and it may be recommended in spite of its ill-arranged prolixity to the legislator, the economist and the workman's friend.

* * *

The soldier-hero who met his death in the siege of Delhi and the rather truculent deity of the Sind Sagaris, John Nicholson, has found an excellent biographer in Captain L. J. Trotter. He was one of those grim, earnest workers with the golden gift of silence enough to warm the heart of Carlyle. It will prove a welcome addition to the Indian history section of any decent library.

* * *

Messrs. Constable are bringing out a translation by the late C. T. Metcalfe of two narratives of the Mutiny at Delhi. Munshi Jawan Lall, a faithful British official, and Nawab Mainodin Hassan Khan both kept diaries during the eventful period. It is these diaries that have been translated, and are being published.

* * *

A healthier story book than 'John Halifax, Gentleman,' it is impossible to place in the hands of youths. It is a good sign of the times that 260,000 copies (of all editions) of the book should have been recently sold in Britain.

* * *

The question as to who was 'the only begetter' of Shakspere's Sonnets has been reopened by Lady Newdigate's 'Gossip from a Muniment Room.' Mr. Sidney Lee discusses the question in the February number of the *Fortnightly Review* and shows how the earlier theory of its being Earl of Pembroke cannot be upheld. He is of opinion that Southampton might possibly enough be Thorpe's 'W. H.'

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MM. Perrin et Cie publish *Le Roman du Prince Othon*, being Mr. Egerton Castle's clever translation of Stevenson's best book.

## EDUCATIONAL NOTES.

The *Edinburgh Review* (January 1898) has an article on the Irish University Question. The writer supposes that there is perfect unanimity of opinion with regard to the following points:—1. That the Roman Catholics of Ireland are entitled to look to the State for adequate provision for their higher education. 2. That attempts hitherto made to meet the educational wants of the Roman Catholics have been incomplete and ineffective. There is all but perfect unanimity of views with respect to the regulation of the proportion of laymen to ecclesiastics in the governing body of the University. Both the Catholics and the Protestants are agreed that no endowments ought to be made for theological teaching out of public funds. They are both for applying the provisions of Dublin Tests of 1873 to the New University so as to open its degrees, honours and emoluments to all comers. There may be some difficulties, the writer fears, about the appointment and the removal of professors as the proposed Board of Visitors may not be independent and impartial enough to place its decisions beyond all cavil. But this is a small practical difficulty which can be solved in due time.

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Of the two suggestion made, the one of establishing a Roman Catholic College to be affiliated to the Dublin University will have the effect of altering the standard that obtains in Trinity College and interfere with its traditions. The other of affiliating the New College to the Royal University seems not to be liable to this objection at any rate. But it has this objection, that nobody cares a button for the Royal University, which has proved as dismal a failure as any other examining "university." What Irish Roman Catholics naturally want is a residential University that will bear comparison with Dublin, Oxford and Cambridge, and in which Roman Catholic Theology will be officially recognised. Of course it may be asked, why not broaden the basis of Dublin? But this would probably not be possible, or if possible not successful. Dublin is the stronghold of Anglo-Irish Anglicanism; it is the University of the Pale and Anglican Church of Ireland: to include the "Wild Irish" of the South and West and their Theology would probably only aggravate those religions disputes which have done so much to destroy or retard Irish progress. Though we have no faith in a multitude of universities, we think that in the case in point a good reason has been made out for the establishment of a first class Roman Catholic University, say at

Cashel, the home of so much that was great and noble in the turbulent history of Munster.

* * *

Miss Kate Morris Cone continuing her article in the January number of *Education* (Boston), writes of the delight which young children had when they listened to poems and narratives from history and tales of travel. The moral of the tale, as she says, is 'the infection of enthusiasm from the elder mind.' 'The taste in books of children is colored by the literary predilections of their elders. No one pretends that the infant mind will choose the best poetry and the purest prose as inevitably as according to the pious theories of old time theologians the speech of Mowgli would have been Hebrew.'

* * *

Professor T. J. Allen complains against the great attention paid to the cultivation of mere memory in college work. The curriculum 'should be so framed as to develop the inventive faculty, reason, and judgment rather than memory alone. The true purpose of a college is to begin, not to complete education. The college should cultivate a predilection for self-education.'

* * *

Mr. E. L. Cowdrick in the first instalment of an article on 'The Uncertainty of the Teachers' Profession' says that in America no teacher can do his best work under the existing conditions. Even if he knows of no special complaint, he realises that at best his going is but a question of time. The reasons, Mr. Cowdrick mentions, are: 1. The personal grudge against a particular teacher on the part of a member of the managing board. [The dissatisfied member becomes the repository of everything antagonistic to the teacher. An active member can get somebody to vote with him and an active minority is more powerful than a passive majority]. 2. Retrenchment schemes. [No matter how efficient a teacher may be, or how popular he is with his pupils, the board will let him go without regret, because they can get men to serve on less salary]. 3. The total lack of professional courtesy among teachers themselves. [No sooner is it known that a teacher may likely leave a place than there rise scores of applicants under-bidding each other. It is a fact that a teacher who wishes to go to a better place, and at the same time would hold to his present position until he has something certain, dare not let it be known that he is even thinking of leaving for fear he will lose what he has].

The article is feelingly written and were a few changes made in proper names it would almost exactly describe the position of those scholmasters in this Presidency who have the fortune to serve in schools under private management.

Whenever you have cause to complain to a parent of the short comings or the wrong-doings of a child, be as earnest and forcible as you feel the case demands, but somewhere and somehow speak of at least one good quality which the child possesses and it will have the effect of causing the parent to side with you heartily in your efforts for the improvement of the boy. G. H. Tripp. (*Journal of Education*, Boston and Chicago).

* * *

At the beginning of the shool year in September, 1897, corporal punishment was abolished in a certain school in Allegheny, Pa. When pupils were unruly they wre to be sent home. At a meeting of the board held December, 4, the verdict was unanimous that the scheme was a failure. When the pupils learnt that the teacher had lost power to apply corporal punishment, control was lost. Principal and teachers advocated a return to old methods. The managing board came to the same conclusion.

* * *

A chair is to be founded at the various Universities of Russia for the purpose of having the Hindustani tongue taught to officers. The pupils are to be sent to India after a preliminary examination, to complete their studies.

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## INDIAN NEWS.

### BENGAL.

It has been proposed to institute in the Calcutta University two new degrees—Doctor of Science and Doctor of Literature.

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Babu Nitya Gopal Mokerjee has been appointed Agricultural Lecturer of the Civil Engineering College, Sibpur. He will proceed to the College of Agriculture, Saidapet, to get some idea of the work done here.

### BOMBAY.

Mr. T. B. Kirkham, the well-known Educationist of Bombay, left India on the 1st inst. Beginning his work in the Department as Head-master of the High School, Poona, he became Principal of Elphinstone High School, Bombay, then Professor of English Literature, Elphinstone

College and ended his service as Inspector of Schools. He had served 36 years in the Bombay Educational Department when he retired.

* * *

In connection with the late solar eclipse we learn that thirty good photographs of spectra, fifteen of which are excellent, were secured by Professor Naigamvala. The Professor's work was particularly arducus because of the late arrival of some of the principal instruments sent out from England, Cooke's 6-in. Spectroscope reaching Mr. Naigamvala so late as January 11. The Maharajah of Kholapore supported the Professor with funds for the eclipse instruments and specially deputed Professor Apte to join the Poona party. Professor Apte secured some very interesting observations, on the visibility of planets during the course of the eclipse, and they will be of value in determining the intensity of the corona light.

## BURMA.

An educational order has been issued in Rangoon that no one should present himself for examination in Tamil or Telugu unless there should be in the school from which the candidate appears a Tamil or a Telugu teacher. We cannot agree in Dr. Mark's contention that the order smacks too much of red-tapism. The fact that Tamil was taught in the school under Dr. Mark's management by a butler only shows that the Doctor was particularly lucky in that the same person was able to serve him in two capacities, and not that specially qualified teachers of Tamil or Telugu are not needed.

## CEYLON.

The island of Ceylon seems to be ahead of India as regards technical instruction. In the Technical College, Colombo, it has a real school for practical instruction in the useful arts and applied sciences. The College does useful work in various industrial branches and has added courses in Telegraphy and Electrical Engineering.

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The Colombo Museum seems to have earned a reputation for training young men for useful work. D. M. DeZilva Wickrama Singha, temporarily employed in the British Museum, in classifying and cataloguing Sinhalese and Pali books, learnt his work in the Colombo Museum. Rumour has it that he is to be appointed an Archæological Commissioner of Ceylon. H. F. Fernando, the taxidermist, and S. F. Goone Wardene have also distinguished themselves.

The Ceylon *Independent* says that in the Royal College of Colombo twelve Sixth Form boys went out during school hours to witness an inter-collegiate Cricket match in which the Royal College team was playing. The Headmaster gave these students the option of caning or expulsion. In consequence of the Headmaster's proceedings eighteen students of the Matriculation class left the school in a body. Only two submitted to the caning. There are four students in the Matriculation class, the strikers having all gone for admission to the Wesleyan College. We manage these things better in Madras.

## NORTH-WEST PROVINCES.

We regret to record the death of Captain E. D. Bullen, R.E., Acting Principal of the Thomason College, Rurki, from dysentery and pneumonia. Captain Bullen was a graduate of Trinity College, Dublin, and his long services in connection with Rurki as first Assistant Principal will be remembered for many years to come by the *alumni* of that College scattered far and wide.

* * *

Miss Edith Gow, formerly Headmistress of Bishop Cotton's Girls' School, Bangalore, has been appointed Lady Superintendent of La Martinière Girls' High School, Lucknow. She passed the Mathematical Tripos of the Cambridge University in June 1897. She is qualifying for the Teacher's certificate of the Cambridge Training Syndicate, and will enter on her duties as Superintendent in June or July next.

* * *

A Mahommedan University for imparting oriental learning is to be started at Lucknow. A Committee of *Ulamas* has been appointed to settle the preliminaries. A site has been selected and the proposed University will soon be an accomplished fact.

## MADRAS.

The month of March has been a busy one in Madras, especially as regards school and college prize-distributions.

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On March 12th H. E. the Governor opened the fine new buildings of the Hindu High School, Triplicane, and presided at the Prize Distribution of the Harris High School, Royapettah. Both functions were well attended, and the fine costumes of the Mahommedan gentlemen present at the latter added to the picturesqueness of the gathering.

On 17th March the Venerable the Archdeacon of Madras gave away the prizes at Bishop Corrie's Grammar School, while on the following day Mrs. Grose did the same for the Girls' School.

* * * *

On the 19th, Doveton College held its most successful Prize Day with H. E. the Governor in the chair. The affair passed off extremely well, the music being particularly good. His Excellency made an appropriate little speech in which he impressed on parents the need of supervising their boys out of school especially in the matter of home preparation.

* * *

Two days later Lady Bliss gave away the prizes at the Doveton Girls' High School.

* * *

On 28th March H. E. the Governor presided at the Christian College Prize Distribution, which took place in the Anderson Hall and was very well attended. From the annual report we learn that the strength of the College was 706, as against 749 of the last year, the falling off in the strength being accounted for by the decline in strength of the Junior B. A. class which was the result of the small number of F. A. students that passed the last Examination in December 1897. The High School strength was 994, as against 1007 of the last year.

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Revd. Alexander Miller has placed the College under obligation by his benefactions to the institutions.

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Dr. Miller has increased the endowments of the various studentships founded by him with gifts to the extent of Rs. 16,640. They form most valuable foundations and promise to contribute in years to come to the encouragement of original research among the graduates of the College.

* * * *

Results of the various Examinations.

| Examination | No. sent up. | No. passed. | Class 1 | Class 2 | Class 3 |
|---|---|---|---|---|---|
| B. A. English | 259 | 167 | 3 | 65 | 99 |
| 2nd Language | 169 | 134 | 7 | 65 | 62 |
| Mathematics | 15 | 9 | ,, | 3 | 6 |
| Physical Science | 37 | 12 | ,, | 1 | 11 |
| Biology | 16 | 14 | ,, | 8 | 6 |
| Philosophy | 90 | 57 | 1 | 25 | 31 |
| History | 68 | 40 | 1 | 11 | 28 |
| F. A. Examination | 197 | 79 | 4 | 75 | 0 |
| Matriculation | 97 | 22 | 3 | 19 | 0 |

We are pleased to learn that a collection of funds was made for the Famine Relief to which Professors, Masters, and Students subscribed. Rs. 702-8-0 was remitted to the Famine Relief Committee.

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One feature of the entertainment, which apparently escaped observation, was the lavish—one might even say wholesale—distribution of prizes, medals and studentships. Not counting several big studentships, there were no fewer than 207 prizes and medals, several being gold medals and big money prizes. No doubt the Christian College is a big institution, but the scale of its prize-giving is still bigger, and seems likely to be over done. Prizes and scholarships are all very well in their way, but there is always considerable risk of the mercenary predominating over the academic interest in the student's mind when they are on such a lavish scale. In Scripture alone, Rs. 205 and a Gold Medal are given as prizes in the College Department, and of these one prize is worth Rs. 100 and another Rs. 60. The whole thing smacks rather of a big commercial enterprise on modern lines.

* * *

On the same day, March 28th, Lady Bliss gave away the prizes at the Madras School of Music, and an interesting musical programme was performed.

* * *

Two days later Mr. Reynolds of the Christian College gave an interesting Lantern Lecture on the Caves of Ellora, which, it is needless to say, was much appreciated by the members and friends of the Presidency College Literary Society, which was fortunate enough to secure him. Mr. Reynolds has done excellent work in popularising Indian Architecture among Madras audiences, and all lovers of art and education owe him a debt of gratitude for so doing.

* * *

The supply of passed candidates for appointments as *Chapprasis* in the Madras P. W. D. has fallen short of the demand, and Government has been induced to remit the examination qualification, *pro tem.* to meet the exigencies of public service. What a lucky opening for unpassed aspirants for office!

* * *

*Indian Engineering* complains that at the final Examinations held by the Board of Examiners, College of Engineering (Madras), in December 1897, three candidates from the Engineer Class, seventeen from the Engineer Subordinate Class and the same number from the Sub-Overseer and Surveyor Class passed—*all* in the lower division.

* * *

We congratulate Dr. Duncan on his election to membership of the

Athenæum Club, and Rev. Dr. Cooper on his honorary degree of LL.D. in Aberdeen University.

* * *

At a Conference of Educational officers in Calicut during Easter, it was decided to make a total grant of 8,200 Rs. to be spent on Moplah Education alone, 5,500 Rs. being allotted to the South Malabar and 2,700 Rs. being allotted to the North Malabar.

We see that the Moplah is getting cured of his prejudices. At the last Primary Examination, a Moplah girl appeared and has passed the test.

* * *

The freezing point in educational salaries has been reached at Calicut. An increase of 1 Re. per mensem has been sanctioned by the Taluq Board in the case of those teachers whose salaries are 4 Rs. per mensem.

* * *

There was a great hue and cry raised at Kumbakonam when it was proposed to collect fees from the girls studying in the girls' schools The fees ranged only between 4 as. and 6 pies. The Municipal authorities were for allowing the payment to be optional. Mr. Ayling was for giving up all pretence of collecting fees. This shows what real interest is shown by us in the education of our girls.

* * *

At the meeting of the Madras Students' Hostel Committee, which was held on the 28th ultimo, Mr. Justice Subramania Aiyar paid a deservedly high compliment to Sir Henry Bliss for the valuable services he rendered in the matter of making the scheme a success.

* * *

The prize-distribution ceremony of the Hindu High School, Madmantakam, came off on the 10th instant, Mr. Justice Subramania Aiyar presiding. The school seems to have been particularly lucky in the presidents for such ceremonies. Messrs. T. Gopala Row, P. Ranga natha Mudaliyar, V. Kristnamachariyar, all eminent in their several ways, had been presidents on previous occasions. And the other day the managing authorities got in Mr. Justice Subramania Aiyar, the one man of high position in Madras, who has sympathies for all movements that make for the good of his fellowmen.

* * *

The prize-distribution ceremony of the National Girls' School, Trichinopoly, came off on the 20th March. The progress of the school reflects great credit on the President-Founder, Mr. Ganapati Aiyar.

* * *

It has been proposed to abolish 25 Primary Schools in the Taluq Board, Nellore, with a view to improve the status of the teachers in the remaining schools.

Mr. M. R. Ramaswami Siva, B.A., of the College of Agriculture, Saidapet, has been appointed Overseer of the Government Botanical Farm at Ootacamund.

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S. Muthusami Nadar, a Hindu Shanar, has taken the B.A. degree this year. He is the first graduate in his community.

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Mr. S. Swaminathan, the Madras Gilchrist Scholar, has passed the LL.D. Examination of the Edinburgh University, taking the highest place in the Examination.

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## NOTIFICATIONS.

### BOMBAY.

List of appointments in the Educational Department for the month of March 1898.

*11th March* 1898.—Mr. G. N. Khare, B.A., 1st Assistant, Sholapur High School, is appointed 2nd Assistant, Poona High School, *vice* Mr. V. S. Deshamukh, transferred to Bombay.

*16th March* 1898.—Mr. V. V. Bhide, B.A., 4th Assistant, Elphinstone High School, Marathi side, is appointed 1st Assistant, Sholapur High School, *vice* Mr. G. N. Khare, transferred to Poona; Mr. S. R. Wanavle, B.A., 2nd Assistant, Satara High School, is appointed 4th Assistant, Elphinstone High School, *vice* Mr. V. V. Bhide.

*17th March* 1898.—Mr. B. K. Pandya, 4th and *sub-pro-tem*, 3rd Assistant, Taluq High School, Godra, is appointed 3rd Assistant in the same school.

The following appointments are made in the N. J. High School, Karachi:—Mr. K. J. Chainani, B.A., 1st Assistant, Hydrabad High School, to be 1st Assistant, *vice* Mr. N. M. Pajnigar promoted; Mr. L. A. Vasu, B.A., 3rd Assistant, N. J. High School, Karachi, and *sub-pro-tem*, 1st Assistant, Shikarpur High School, to be 2nd Assistant; Mr. D. C. Lakhumalani, B.A., 3rd Assistant, Shikarpur High School, and *sub-pro-tem*, 3rd Assistant, N. J. High School, Karachi, to be 3rd Assistant; Mr. M. D. Tatati, 5th Assistant, to be 4th Assistant, *vice* Mr. V. D. Pandya, transferred to Talta Municipality; Mr. M. M. Gandhi, 1st Assistant, Municipal Anglo-Vernacular School, Larkhana, to be 5th Assistant; Mr. K. J. Malkani, B.Sc., 5th Assistant, Hydrabad High School, to be 6th Assistant, *vice* Mr. K. B. Shahani, transferred to Shikarpur High School; Mr. C. T. Advani, B.A., *sub-pro-tem* 7th Assistant, *vice* Mr. U. C. Thadani, transferred to Hydrabad High School; Mr. N. J. Kataria, 9th Assistant, to be 8th Assistant, *vice* Mr. D. K. Gajru, transferred to Larkhana Municipality; Mr. N. V, Vaidyu, 11th to be 9th Assistant; Mr. B. T. Sujansingani, 9th Assistant, Hydrabad High School, to be 11th Assist-

ant; Mr. P. N. Shahani, 10th Assistant, Shikarpur High School, to be 15th Assistant, *vice* Mr. R. M. Mukhijani, transferred to Hydrabad High School; Mr. C. K. Khilanani, 17th Assistant, to be 16th Assistant, *vice* Mr. V. K. Vasu, transferred to Tatta Municipal Anglo-Vernacular School; Mr. T. M. Thadani, 18th Assistant, to be 17th Assistant; Mr. P. L. Waswani, 5th Clerk, Educational Inspector, Sind, and *sub-pro-tem* 11th Assistant, Hydrabad High School, to be 18th Assistant.

The following appointments are made in the Hydrabad High School:—Mr. K. W. Lalvani, B.A., 2nd Assistant, N. J. High School, Karachi, to be 1st Assistant, *vice* Mr. K. J. Chainani, transferred to Karachi; Mr. U. C. Thadani, B.A., 7th Assistant, N. J. High School, Karachi, to be 5th Assistant, *vice* Mr. K. J. Malkani, transferred to N. J. High School, Karachi; Mr. R. M. Maklujani, 15th Assistant, N. J. High School, Karachi, to be 9th Assistant, *vice* Mr. H. J. Kataria, promoted.

*28th March* 1898.—The following appointments are made in the Shikarpur High School:—Mr. H. S. Advani, B.A., 4th Assistant and *sub-pro-tem* 3rd, to be 3rd Assistant; Mr. S. L. Pahilajani, 1st, B.A., 5th Assistant and *sub-pro-tem* Head Master, Rohri Municipal Anglo-Vernacular School, to be 4th Assistant, but to continue at Rohri, until further orders; Mr. K. B. Shahani, B.A., 6th Assistant, N. J. High School, Karachi, and *sub-pro-tem* 4th Assistant; Shikarpur High School, to be 5th Assistant; Mr. M. T. Waswani, 11th Assistant, to be 10th Assistant, *vice* Mr. P. N. Shahani, transferred to Karachi.

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*Postal Insurance Fund.*

No. 1309.

FINANCIAL DEPARTMENT.

Bombay Castle, 23rd March 1898.

Endorsement by the Government of India, Finance and Commerce Department—Forwarding in continuation of the endorsement from that Government, No. 89-P., dated 7th January 1898, copy of the following erratum No. 911-P., dated 21st February 1898:—

"In the Rules regarding the Postal Life Insurance Scheme, promulgated with the Financial Resolution No. 89-P., dated 7th January 1898, cancel the last column of Table IV headed by the number 60 and the age numbers 51, 52, 53, 54, and 55 in the first column."

RESOLUTION.—Copies of the erratum should be forwarded to the Officers and Departments to whom Government Resolution No. 428, dated 29th January 1898, was communicated.

2. The rules as modified by the erratum have been published in the *Bombay Government Gazette* of the 17th instant, Part I.

A. M. T. JACKSON,

*Under-Secretary to Government.*

## Table III.

# Deferred Monthly Allowance.

*A monthly allowance of Annas Eight (As. 8), commencing after a stated number of years, and lasting throughout life, can be secured by payment of a monthly subscription, the amount of which depends on the age of the subscriber as shown below :—*

| Age. | Amount of monthly Subscription to be paid until the deferred Monthly allowance begins. | | | | | |
|---|---|---|---|---|---|---|
| | To commence after 5 years. | To commence after 10 years. | To commence after 15 years. | To commence after 20 years. | To commence after 25 years. | To commence after 30 years. |
| | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. |
| 21 | 1 8 4 | 0 9 11 | 0 5 2 | 0 3 0 | 0 1 9 | 0 1 0 |
| 22 | 1 7 11 | 0 9 8 | 0 5 1 | 0 2 11 | 0 1 8 | 0 1 0 |
| 23 | 1 7 6 | 0 9 6 | 0 4 11 | 0 2 10 | 0 1 8 | 0 0 11 |
| 24 | 1 7 0 | 0 9 3 | 0 4 10 | 0 2 9 | 0 1 7 | 0 0 10 |
| 25 | 1 6 7 | 0 9 1 | 0 4 8 | 0 2 8 | 0 1 6 | 0 0 10 |
| 26 | 1 6 2 | 0 8 10 | 0 4 7 | 0 2 6 | 0 1 5 | |
| 27 | 1 5 9 | 0 8 8 | 0 4 5 | 0 2 5 | 0 1 4 | |
| 28 | 1 5 3 | 0 8 5 | 0 4 3 | 0 2 4 | 0 1 3 | |
| 29 | 1 4 10 | 0 8 3 | 0 4 2 | 0 2 3 | 0 1 3 | |
| 30 | 1 4 5 | 0 8 0 | 0 4 0 | 0 2 2 | 0 1 2 | |
| 31 | 1 4 0 | 0 7 10 | 0 3 11 | 0 2 1 | | |
| 32 | 1 3 7 | 0 7 7 | 0 3 9 | 0 2 0 | | |
| 33 | 1 3 2 | 0 7 5 | 0 3 7 | 0 1 11 | | |
| 34 | 1 2 9 | 0 7 2 | 0 3 6 | 0 1 10 | | |
| 35 | 1 2 4 | 0 7 0 | 0 3 4 | 0 1 9 | | |
| 36 | 1 1 11 | 0 6 9 | 0 3 3 | | | |
| 37 | 1 1 6 | 0 6 6 | 0 3 1 | | | |
| 38 | 1 1 1 | 0 6 4 | 0 3 0 | | | |
| 39 | 1 0 7 | 0 6 1 | 0 2 10 | | | |
| 40 | 1 0 2 | 0 5 11 | 0 2 9 | | | |
| 41 | 0 15 8 | 0 5 8 | | | | |
| 42 | 0 15 3 | 0 5 6 | | | | |
| 43 | 0 14 9 | 0 5 3 | | | | |
| 44 | 0 14 4 | 0 5 1 | | | | |
| 45 | 0 13 11 | 0 4 11 | | | | |
| 46 | 0 13 6 | | | | | |
| 47 | 0 13 1 | | | | | |
| 48 | 0 12 8 | | | | | |
| 49 | 0 12 3 | | | | | |
| 50 | 0 11 10 | | | | | |

Note.—By the term "age" is meant the nearest complete age, *e.g.*, 29 years 7 months and 30 years 5 months, both reckon as 30 years.

# TABLE IV.
## ENDOWMENT ASSURANCE.

*The Payment of Rs. 1,000 at the ages mentioned at the head of each column or at death, if earlier, can be secured by monthly payments varying according to the age of the subscriber at the rates given below:—*

| Age | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. | R. A. P. |
| 21 | 2 13 0 | 2 11 1 | 2 9 6 | 2 8 0 | 2 6 7 | 2 5 3 | 2 4 3 | 2 3 1 | 2 2 3 | 2 1 6 | 2 0 8 |
| 22 | 2 15 8 | 2 13 8 | 2 11 10 | 2 10 1 | 2 8 7 | 2 7 2 | 2 6 0 | 2 4 10 | 2 3 10 | 2 2 11 | 2 2 1 |
| 23 | 3 2 7 | 3 0 4 | 2 14 3 | 2 12 5 | 2 10 9 | 2 9 3 | 2 7 11 | 2 6 9 | 2 5 7 | 2 4 7 | 2 3 8 |
| 24 | 3 5 9 | 3 3 3 | 3 0 11 | 2 14 11 | 2 13 1 | 2 11 6 | 2 10 0 | 2 8 8 | 2 7 5 | 2 6 5 | 2 5 4 |
| 25 | 3 9 3 | 3 6 5 | 3 3 10 | 3 1 7 | 2 15 7 | 2 13 10 | 2 12 2 | 2 10 8 | 2 9 5 | 2 8 3 | 2 7 2 |
| 26 | 3 13 0 | 3 9 11 | 3 7 2 | 3 4 7 | 3 2 4 | 3 0 5 | 2 14 6 | 2 12 11 | 2 11 6 | 2 10 3 | 2 9 1 |
| 27 | 4 1 4 | 3 13 10 | 3 10 8 | 3 7 10 | 3 5 4 | 3 3 2 | 3 1 2 | 2 15 4 | 2 13 9 | 2 12 5 | 2 11 1 |
| 28 | 4 6 2 | 4 2 1 | 3 14 7 | 3 14 4 | 3 8 7 | 3 6 2 | 3 3 11 | 3 2 0 | 3 0 2 | 2 14 9 | 2 13 3 |
| 29 | 4 11 7 | 4 6 11 | 4 2 10 | 3 15 4 | 3 12 2 | 3 9 5 | 3 6 11 | 3 4 10 | 3 2 10 | 3 1 2 | 2 15 7 |
| 30 | 5 1 8 | 4 12 3 | 4 7 8 | 4 3 8 | 4 0 1 | 3 13 0 | 3 10 2 | 3 7 10 | 3 5 8 | 3 3 9 | 3 2 0 |
| 31 | 5 8 6 | 5 2 3 | 4 13 0 | 4 8 4 | 4 4 5 | 4 0 10 | 3 13 9 | 3 11 1 | 3 8 9 | 3 6 6 | 3 4 8 |
| 32 | 6 0 5 | 5 9 3 | 5 2 11 | 4 13 8 | 4 9 2 | 4 5 2 | 4 1 8 | 3 14 8 | 3 12 0 | 3 9 7 | 3 7 6 |
| 33 | 6 9 8 | 6 1 2 | 5 9 10 | 5 3 9 | 4 14 6 | 4 9 11 | 4 6 0 | 4 2 5 | 3 15 0 | 3 12 10 | 3 10 6 |
| 34 | 7 4 8 | 6 10 4 | 6 1 9 | 5 10 7 | 5 4 4 | 4 15 2 | 4 10 8 | 4 6 8 | 4 3 3 | 4 0 4 | 3 13 10 |
| 35 | 8 1 9 | 7 5 2 | 6 10 10 | 6 2 4 | 5 11 1 | 5 5 1 | 4 15 10 | 4 11 5 | 4 7 6 | 4 4 2 | 4 1 3 |
| 36 | 9 2 0 | 8 2 3 | 7 5 8 | 6 10 5 | 6 2 11 | 5 11 10 | 5 5 10 | 5 0 8 | 4 12 3 | 4 8 5 | 4 5 1 |
| 37 | 10 6 7 | 9 2 6 | 8 2 10 | 7 6 4 | 6 12 1 | 6 3 8 | 5 12 8 | 5 6 8 | 5 1 6 | 4 13 3 | 4 9 4 |
| 38 | 12 1 7 | 10 7 1 | 9 3 0 | 8 3 5 | 7 6 11 | 6 12 10 | 6 4 5 | 5 13 6 | 5 7 6 | 5 2 6 | 4 14 1 |
| 39 | 14 6 7 | 12 2 1 | 10 7 8 | 9 3 8 | 8 4 2 | 7 7 9 | 6 13 8 | 6 5 5 | 5 14 4 | 5 8 6 | 5 3 6 |
| 40 | 17 12 7 | 14 7 2 | 12 2 9 | 10 8 5 | 9 4 6 | 8 5 1 | 7 8 9 | 6 14 8 | 6 6 5 | 5 15 7 | 5 9 8 |
| 41 | ...... | 17 13 2 | 14 7 11 | 12 3 7 | 10 9 4 | 9 5 6 | 8 6 2 | 7 9 10 | 6 15 10 | 6 7 8 | 6 0 9 |
| 42 | ...... | ...... | 17 14 1 | 14 8 10 | 12 4 7 | 10 10 5 | 9 6 8 | 8 7 4 | 7 11 1 | 7 1 2 | 6 9 0 |
| 43 | ...... | ...... | ...... | 17 15 1 | 14 9 11 | 12 5 9 | 10 11 7 | 9 7 11 | 8 8 8 | 7 12 6 | 7 2 7 |
| 44 | ...... | ...... | ...... | ...... | 18 0 1 | 14 11 1 | 12 6 11 | 10 12 11 | 9 9 3 | 8 10 1 | 7 13 11 |
| 45 | ...... | ...... | ...... | ...... | ...... | 18 1 2 | 14 12 3 | 12 8 3 | 10 14 3 | 9 10 9 | 8 11 6 |
| 46 | ...... | ...... | ...... | ...... | ...... | ...... | 18 2 4 | 14 13 6 | 12 9 7 | 10 15 7 | 9 12 1 |
| 47 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 18 3 6 | 14 14 11 | 12 10 11 | 11 1 0 |
| 48 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 18 4 10 | 15 0 2 | 12 12 4 |
| 49 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 18 6 0 | 15 1 5 |
| 50 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 18 7 1 |

NOTE.—By the term "age" is meant the nearest complete age, *e.g.*, 29 years 7 months and 30 years 5 months, both reckon as 30 years.

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